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ABSTRACT

The monograph is based on a study of curricular and instructional changes taking place in two- and four-year colleges in courses and programs designed to prepare people for vocations or careers. The study also examined some technical, vocational, or career programs offered in noncollegiate institutions to determine whether proprietary or vocational institutions have developed new insights which could be adapted to the collegiate situation. The study had disappointing results, in that vocational or occupational curricula were found to be not particularly innovative; education for career and occupations was found to be a display of traditional practice accompanied by theorizing. These findings are discussed in the monograph's first three chapters. The authors were successful in identifying curricular issues of occupational education. These are specified in the monograph's last two chapters, and a rationale is presented which may assist faculties and administrations in resolving some curricular perplexities. The intent of the authors in preparing the monograph was to bridge the gap between theorizing and the actual conduct of vocational programs. (Author/AJ)

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Higher Education for Occupations

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Lewis B. Mayhew
Stanford University

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Foreword

For several years the American educational scene has witnessed a redefinition of post-high school education toward greater articulation with "career education" at all levels and toward greater diversity of institutional types offering post-high school programs.

Lewis B. Mayhew, in this monograph, deals with a somewhat neglected aspect of this broadening of the postsecondary spectrum; he examines the ways in which traditional collegiate institutions respond to the demand for occupational curricula. Professor Mayhew's concern is important in terms of the ever-present pressure to update curricula to keep pace with student needs. It is particularly relevant at a time when educational debates are centering on problems of postsecondary financing and standardization of per unit costs measurements. We are interested in knowing how well suited each kind of institution is in responding to a particular kind of curricular objective — not only in determining dollar differences which are quickly calculated.

The Southern Regional Education Board is pleased to add this contribution to the numerous studies in curriculum analysis which Professor Mayhew has already produced under its auspices.

WINFRED L. GODWIN
President

Preface

This monograph is the sixth in a series sponsored and supported by the Southern Regional Education Board. Financial support for this monograph was in part supplied by The Spencer Foundation of Chicago.

The monograph is based on a study of curricular and instructional changes taking place in two- and four-year colleges in courses and programs designed to prepare people for vocations or careers. The study also examined some technical, vocational or career programs offered in noncollegiate institutions to determine whether proprietary or vocational institutions have developed new insights which could be adapted to the collegiate situation. The result of the study is somewhat disappointing in that vocational or occupational curricula did not seem to be particularly innovative. Some interesting developments were found, such as design courses in engineering, community experiences in nursing or simulated games in business. But the reality of education for careers or occupations is a display of traditional practice accompanied by much theorizing and exhortation for improved counseling, testing, and guidance. The most widely publicized concept, that of career education, seems essentially an untested theory or rationale for better articulation between levels of education dealing particularly with occupational areas.

While the discovery of widespread reforming tendencies proved to be impossible, curricular issues of occupational education were at least identified. In the last two chapters of the monograph those issues are specified and an overall rationale presented which might assist faculties and administrations in resolving some curricular perplexities. It is always difficult to predict how a book will be used. The intent in preparing this monograph was to create a document which could help faculties wrestle with curricular change having to do with occupations and vocations. It tries to bridge the gap between theorizing and limited experimentation with the actual conduct of vocational programs.

Several individuals have played major roles in making this monograph possible; Drs. Winfred L. Godwin and E.F. Schietinger of the Southern Regional Education Board have, as with previous monographs, been supportive but critical and analytical. Catherine Phinney, who has typed the drafts of most of the monograph series, has once again demonstrated her amazing competency. The entire manuscript was edited by Mrs. Gail M. Crider, the final typescript was prepared by Mrs. Ruth Gentry and proofed by Mrs. Patricia P. McArver. My thanks and appreciation go to all of them.

LEWIS B. MAYHEW

Stanford University
October 8, 1973

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Prologue

This monograph is a study of occupational, vocational or careers curricula in American undergraduate collegiate institutions. It attempts to gauge the needs and values of formal education for vocational purposes, to review the nature and scope of vocational curricula, to examine and evaluate principal attempts at change or reform, and finally to suggest principles and guidelines which might assist faculties and administrators to plan more effectively whatever vocational and career programs are deemed necessary. A brief overview may quickly be provided as an aid to those using what has turned out to be a rather complex report.

American four- and two-year colleges have historically offered programs presumed to lead to immediate employment. Liberal arts colleges have long prepared teachers, as have state colleges and universities. Community junior colleges have stressed, at least in principle, technical and vocational education as a major purpose. Various sorts of technical institutes have sought to prepare people for immediate entry into a limited number of vocations. Despite the practices of institutions, faculties have not necessarily supported the principle that their institutions should be engaged in preparing people for jobs. At least three principal attitudes have evolved concerning this matter — attitudes which continue to divide college and university faculties. The first point of view is that preparation for vocations is the most important thing formal education should undertake and that everything else should be considered as incidental. The second attitude, at the opposite end of a continuum, holds that colleges and universities should by and large refrain from formal vocational preparation, in part because it really isn't needed in an industrialized society and in part because it is incompatible with the fundamental nature of education. The middle position seeks to use preparation for vocations as an entry into studies designed to develop fully mature and thoughtful adults. Such conflicting attitudes by thoughtful individuals are possible because of quite conflicting evidence. There is information to show high relationship between educational level and job performance and there is considerable testimony that more education is needed as the range of vocations increases. However, there is other, contradictory evidence which holds that formal education (to the degree that it is related to jobs) serves primarily as a screen and does not develop skills which prove to be particularly successful.

Occupational, vocational or career curricula in four-year bachelor's degree-granting institutions reveal certain commonalities, a reasonable variety of programs and a number of unresolved issues. Regardless of whether the institution is a liberal arts college or complex university, education and business are generally offered, with engineering almost as frequently offered in the more complicated kinds of institutions. However, depending upon a variety of factors, different institutions offer such widely diverse curricula as actuarial science, communications, gemology or marine biology.

All these tend to offer theoretical subjects of relevance to practice, applied courses and opportunity for supervised practice as part of a general education program. These programs, however, typically reflect serious weaknesses. Theory dictating the optimum proportion of various types of courses is rarely made explicit. Nor are students given much advice as to why they should take certain courses. Many curricula force students to take so many different courses as to produce a frenzied academic life style. Too many institutions staff vocational programs with too few faculty members and with faculty members having no relevant work experience. Too little thought has been given to relating sequences of courses to stages in the developmental patterns of students. Faculties in vocational areas sense a need for students to have exposure outside of the professional field, yet all too frequently those outside courses are taught by equally professional faculty with the needs of their own field paramount over the needs of the professional students. As pressure from students for greater relevance in their programs has mounted, professional faculties have begun to loosen tight requirements and to allow students to select courses from broad categories.

However, the illogicalities of the distribution system had not been solved. Generally, college catalogues and course descriptions have failed to indicate the sorts of competencies programs were intended to foster, and have not indicated a rationale to enable student election of courses congruent with vocational needs. Generally, occupational curricula has not settled upon a course structure indicating the optimum placing of general studies, basic science studies, skills courses and practice. Some programs organize these materials in vertical segments while others are beginning to experiment with mixing the segments. There is no general agreement as to whether occupational programs should be primarily elective or primarily prescriptive. Nor is there agreement as to whether liberalizing courses should be taken in depth or through broad surveys. Then, too, the perennial curricular problem of the place of foreign language instruction continues to perplex.

Community junior colleges, after an initial concentration on college transfer programs, moved definitely into the technical-vocational area. Especially after World War II, technical-vocational education became one of the major objectives of junior college education; and while still only a minority of junior colleges offer a broad array of programs, expansion is under way, with work offered in such fields as business, health-related services, engineering technology and home economics. Business provides the largest number of programs, with such specialties as accounting, restaurant operations, traffic management or real estate. Junior college educators still, however, have not agreed upon criteria which could help them select from the wide variety of vocational programs which could be offered.

Two-year institutions face most of the same difficulties experienced by four-year institutions and a number of others as well. Organizing liberal or general courses into tracks suitable for people of varying abilities has not proven successful in practice nor is there a warranted theory to support such arrangements. While

junior college administrators give lip service to valuing vocational programs, many factors work to produce a second class citizenship status for students enrolled in technical-vocational programs. Junior colleges, like other sorts of institutions, have been unable to decide the nature of general education requirements and have tended to settle on the unsatisfying distribution approach to curriculum structure. There has been general awareness of a tension between preparing people for immediate job entry and preparing them for long-term career growth, and in practice the answer to this concern has yet to be found. Relatedly, if junior colleges prepare their students for transfer into vocational programs in four-year institutions, two-year graduates are unprepared for immediate employment. On the other hand, if they are prepared for immediate employment, they likely are unacceptable in the receiving four-year institutions. There continues to be indecision as to appropriate vocational programs for junior colleges. Some leaders would offer virtually anything a community required, while others still search for definition of a criterion that college-level programs possess some degree of uniqueness.

Vocational and career planning in education seems to require considerable counseling and guidance. Yet junior colleges have not been particularly successful in providing such services. By and large, technical and vocational programs in junior college continue to emphasize general education. There is a tendency to develop programs serving a cluster of vocations or a family of occupations. Also, there is considerable experimentation with vocational programs requiring less than two years, and there is a great deal of interest in finding programs appropriate for the various categories of the disadvantaged.

There are, of course, other ways by which individuals can and do receive formal preparation for vocations. Apprenticeships are used to prepare workers for some occupations. However, trade unions and employers limit the number of apprentices, and the method is seen as inadequate for training a large labor force. There are many relatively small proprietary institutions which focus quite narrowly on preparing people for specific jobs. The students tend to like these because of greater flexibility with respect to time of enrollment, shorter course time, a more practical orientation and presumably a better placement effort. Proprietary institutions tend to concentrate in the fields of office work, computer operations, some of the health fields and some of the technical fields. Typical programs prepare people to be a bank teller, a keypunch operator, a dental assistant, or an electronics technologist. Until quite recently, proprietary institutions had not provided much in the way of student services, nor had they engaged very much in remedial work. Further, their rejection of a preoccupation with general or liberal education has denied many of them accreditation, which reduces enrollment by people wishing recognized credentials. Overall, vocational programs in proprietary institutions are quite similar to the vocational parts of programs in two- and four-year institutions. Some have argued that the proprietary institutions might serve as educational pace-setters. Experiences has indicated this is just not so.

Correspondence education can be offered by proprietary institutions or not-for-profit schools and colleges. Correspondence education represents a relatively large sector, enrolling in the early 1970s almost three million students. As an instructional mode, correspondence education requires faculty members to teach by objectives and to work out learning materials which students can follow on their own. Generally, better-known correspondence institutions have succeeded in both of those steps but at the same time have reflected some weaknesses. Correspondence education seems appropriate for some kinds of subjects but inappropriate for others. There are many examples of agencies trying to use the correspondence mode for subjects inappropriate to it. Correspondence education is still struggling with how to provide for the counseling needs of students and how to incorporate the newer media into the curriculum. Also there is a tendency for testing in connection with correspondence instruction to be excessively factual, measuring little more than comprehension of a specialized vocabulary.

Formal adult education takes on a number of different forms, ranging from the quite successful agricultural extension services to casual and as yet untested off-campus programs in store-front institutions. For the culturally or economically disadvantaged, adult education serves primarily individuals wanting upgrading for vocations. Adult education programs particularly in four-year institutions, have served well in only a few vocational fields, for example, education and agriculture. Faculty members offering adult education courses are all too frequently regarded as second-rate, and institutions have not successfully solved the problem of financing a full-blown program of adult education. Junior colleges in some states have been more successful because their financial base allows for extended day, evening or adult education courses to be funded in exactly the same way as are courses offered during the day and during the regular academic year.

Cooperative education is a somewhat different development since it is necessarily a component of a larger program. Cooperative education is a technique for students to relate work experience with academic experience. It seems to be a rapidly expanding part of American higher education although extravagant claims have sometimes been made for it. It does seem more suited to four-year institutions than to two-year institutions, and it does seem more suited for some kinds of vocations than for others.

A panoramic view of vocational, occupational or career education underscores serious unresolved issues. There is no agreement as to the precise balance between the general, liberal and vocational parts of a program. There is no good rule-of-thumb on how to balance broadly theoretical and definitely applied courses within the occupational area, and there is generally little agreement on whether collegiate programs should aim at preparing students for immediate job entry or for long-term career growth. Those responsible for occupational or career programs appear to have been quite insensitive to changing labor market conditions and have contributed to such widely publicized oversupplies as that which obtains in the 1970s for credentialed teachers.

Although postsecondary vocational or occupational education appears confused and in the past has not been particularly innovative, by the early 1970s such forms of education had begun to feel the effects of the same ferment that was producing change in undergraduate liberal arts education and in graduate education for the professions. A theoretical concept of career education gained credence which envisioned carefully articulated sequences of education for vocations from grade school on through graduate and advanced professional schools. Counseling and guidance had long been recognized in theory as essential to education, yet education has rarely been able to solve the financial and staffing barriers which prevented truly effective counseling from taking place. Recently, however, there has been considerable experimentation with new forms of tests and record-keeping devices, utilizing the computer in a counseling capacity, and utilizing student peers as an important paraprofessional resource. Similarly, tests and measurements were seen as entering a new growth period, particularly as courses and curricula moved toward a competency base which required demonstration through testing, but testing which did not penalize students from disadvantaged or atypical backgrounds. Much of the thinking concerning extended degrees or "universities without walls" anticipated that the educational consequences of a wide variety of prior experiences would be demonstrated by new kinds of tests, with the paper-and-pencil test of the past being only one possibility.

The period of the late 1960s and the early 1970s may eventually come to be regarded as the period of intensive course experimentation. Thus individualized instruction is being tried, as are ways to inject more reality into academic course work, to produce interdisciplinary activities and to rearrange group time and space for more effective educational achievement. There are experiments designed to produce a better match between practice teacher and mentor teacher using a computer to compare and match traits. Also there are experiments in teacher preparation for more fully utilizing university professors, college professors and teachers and administrators from cooperating public schools. Many of the new courses are designed to force students into more problem solving activity, whether the fields be business, engineering or nursing. An example is a freshman year course in engineering taken by all students regardless of their specialization that forces them to grapple with a real-life design problem. The quest to inject more realism into courses takes many different forms. An increasingly popular one is to develop game simulation based upon a computer program which allows students to experience vicariously the range of problems and emotions produced by a real-life situation.

Within each of a number of occupational fields there are significant new developments. Journalism, for example, seems to be making much greater use of educational technology as well as more interdisciplinary courses and reality-based experiences. Programs for the preparation of teachers have begun to stress competency-based curricula, more consistent and intimate use of materials from the liberal arts and sciences and more field experiences emphasizing community involvement in inner city or rural

situations.

In business education, which really began substantial reforms in the 1950s, several strands are perceivable. The first is toward individualization of instruction either through tightly programmed materials or through rather loose structures allowing students to sense problems of concern to them and to work on them independently. The second strand is to more completely integrate reality and academic learning. The case study, which had been the basic instructional unit, was an attempt to do this but more recently students have been sent into the field to work on real-life problems. A variation on this theme is the increased use of computer-based management games which allow students to experience many of the emotions of a real-life situation without the consequences of faculty decisions.

Nursing education also has a relatively long history of curricular concern and there has been a constant search to discover a core of underlying science and theory essential to nursing practice. As nursing education moves into the 1970s and '80s, several additional elements have assumed primacy. There are attempts to involve nursing students outside the hospital and to help them learn to cope with family and community problems and pressures. In a number of modified nursing programs students spend rather extensive periods living and working in a community. Since increasingly the health fields must work as a team, schools of nursing are coming to place reliance on multi-disciplinary courses and activities. And, since nursing, like other fields, is becoming more and more specialized, nursing students are allowed to begin their specialization much earlier.

Involving most of the vocational fields are several suggested or attempted reforms. The first of these is the quest to reform the American degree structure to the end that degrees or certificates are awarded at approximately two-year intervals, with improved articulation between the Associate of Arts and the Bachelor of Arts, the Bachelor of Arts and the Masters and so forth. But there is also an attempt to make the degree structure more flexible, allowing students to accelerate through early entry, through stretched-out programs, or through earning considerable credit by examination. This credit by examination underlies another major effort which is to create an external degree structure so that students who find it impossible to be in residence on a campus can nonetheless acquire a degree. In both New York and California there are statewide attempts to develop the external degree, and in the private sector the union of experimental colleges and universities has produced its "University Without Walls." In a sense, the concept of an external degree was brought to the foreground as many new kinds of students sought academic degrees and credentials. These new students represent several distinctive groups: the relatively low-aptitude, low-achieving student; the adult who had to forego formal education at an early age but who needs to gain a credential, or the member of a minority group who has been educationally disadvantaged. It seemed to some that the external degree, offering as it did, a chance to work in relatively unthreatening conditions, would be one means of helping those new

students. Also designed to help these new groups of students is the increasing number of institutions actually designed for a specific clientele. Thus a New York junior college is so organized that all students work for pay part-time and go to school part-time. Or a California institution, organized to serve native Americans and Chicanos, stresses community participation of students in actually maintaining the institution. Important in most of the experiments is some variant of independent study, although evidence is still far from complete that independent study is widely appropriate. One of the more widely practiced reforms is the simple quest on the part of institutions to discover new and viable vocational programs. This can be best illustrated in the case of teacher preparation. As the number of credentialed teachers reached levels far surpassing employment possibilities, students began to turn away from institutions preoccupied with teacher preparation. Those institutions facing serious enrollment drops have begun to search both for criteria to help in discovering new programs and for new programs themselves.

Critique of practice and attempts to reform imply a number of unresolved issues and suggest at least some potential principles. While some professors feel that straight vocational preparation is an inappropriate activity for collegiate institutions, social need as well as tradition indicates that two- and four-year colleges should offer at least some programs. The selection of specific programs to be offered in two- and four-year institutions is much more questionable. However, some principles can assist, such as the principle that no institution can offer everything, or that the faculty of a vocational program should have had relevant work experience. Whatever programs are adopted, institutions should attempt to develop a rationale or framework to aid in the selection of courses and learning materials. There are a number of theories which can assist in this undertaking but in the past they have been relatively unused. If an appropriate rationale can be selected, then catalogue descriptions can be made more helpful to explain to students why they are expected to do the things required of them. An appropriate rationale or theory and careful thought will probably reveal that there are limits to the numbers of specific courses students can take at any one time. That professors are not omnipotent and that they too should be limited with respect to the number of different courses they can teach should also be revealed. Vocational courses presumably require a high degree of professorial expertise in the vocation, and there clearly is a limit to the variety of expertise a given faculty member can possess. One important element of any curricular theory is the truism that courses and sequences of activities should be congruent with the developmental needs of students, although unfortunately this has generally not been an operative principle in the past. Paying attention to the developmental needs of students should suggest ordering of materials. For example, freshmen probably need something more than basic disciplinary or theoretical courses. Less likely of gaining general agreement among college faculties is the principle that undergraduate vocational or career programs should be designed to prepare people for immediate job entry, rather than for some

presumed advancement later in life. For an educational program to anticipate what students would need twenty years after graduation very likely transcends the wisdom, insight or prophetic power of college faculty members.

During the period 1870 to 1910 there was a great flurry of reforming activity in American higher education. Out of that came a cluster of practices which came to dominate and characterize all forms of collegiate work. It seems likely that the period 1960 through the '70s could well be viewed as a similar period of ferment. Agreement has not yet been reached as to which elements of reform will persevere. Faculties would be well served to examine the range of possibilities. Running through most of the attempted reforms is the theme that counseling is an essential ingredient. Yet, few institutions have solved the manpower problem which must be solved if counseling is to be effective. A possible principle is that students would be better served with no counseling except the kinds they can give each other. The same observation can be made of measurement and evaluation, which is proclaimed essential but is relatively poorly practiced. Institutions seriously believing that evaluation is desirable should plan on devoting at least five percent of their instructional budget to systematic institution-wide evaluation. Only through such an investment does it seem likely that the evaluation point of view can come to prevail.

A review of the functions which collegiate institutions actually serve suggests a need for some involvement in vocational preparation but not a preoccupation with it. Undergraduate collegiate institutions provide a custodial service for an age group, facilitate the socialization of students into adult society, serve as a screen into certain kinds of roles and callings, provide a period of relative tranquility for youth as they seek to establish their own identities, and prepare some people for specific jobs. However, the number of specific jobs for which an undergraduate collegiate education is necessary is very likely much more limited than is generally supposed. To aid faculties of two- and four-year institutions in deciding whether a given vocation is appropriate for collegiate preparation, several criteria can be suggested:

1. Does the occupation require the use of a definite and reasonably complex technology?
2. Does the practice of the occupation require a definite understanding of an identifiable body of theory of basic science?
3. Does preparation for the occupation require teaching by persons who have demonstrated competency and experience in the occupation itself?
4. Is it likely that collegiate preparation will produce demonstrably different job performance from preparation attained in less formal ways?
5. Is it difficult to conceive of a competent person in an occupation who has not progressed through a special education program?

6. Does the occupation require a credential or qualification which mandates a completed collegiate program?
7. If an occupation requires the broad theoretical or scientific education presumed to be necessary for long-term professional growth, are college courses so organized and taught that students are likely to internalize the knowledge so that it can be effectively used later in a career?
8. Does the occupation require a specialized vocabulary which is most effectively taught in colleges?
9. Is there likely to be in the short and long run a real demand for individuals prepared for the occupation?

While careful response to such questions can facilitate decisions with respect to occupations, that process can be further eased through use of analytical tools. Ralph W. Tyler has suggested some principles for curriculum construction which force the curriculum builder to specify objectives and to select appropriate learning materials. Market research can be used more extensively to establish the reality of demand. Task analysis of what people actually do in a vocation can provide definite leads as to what should be included in the curriculum. Increasingly the computer used as a tool for simulation seems to have considerable value. While the institutional self-study has typically not been productive of new programs, the technique still has considerable potential, especially if the self-study is done intensively over a relatively short period of time. A particularly vexing issue is whether there is a discrete entity which can be called vocational education which is the especial province of some type of institution. Spokesmen for comprehensive junior colleges contend that there is an entity called technical vocational education and that junior colleges are the most ideally situated to offer such programs. However, their argument is far from persuasive.

Perhaps the only sure thing is that education for occupations is likely to change markedly in the decades ahead. Forces for change are quite visible and potent. First, education has become enormously expensive and the supporting public is demanding that educational programs be more responsive to actual needs, more innovative and more cost effective. This pressure is beginning to force change, albeit reluctantly, on the part of many educators. Second, life styles of people in the United States are rapidly changing, and there are more discontinuities than was previously felt desirable. This is forcing institutions to make provisions for people entering, leaving and re-entering formal education. Third, there is more evidence on the effectiveness of collegiate instruction than at any time in the past. The availability of evidence allows the perception of inadequacies and the demand that they be rectified. It is this availability of evidence which makes plausible performance contracting in an educational setting. Such forces have begun to produce several categories of reform:

1. There is a great deal of interest in changing temporal arrangements which allow for varying lengths or program.
2. There is considerable interest in changing spacial arrangements and student groupings.

3. There is a great deal more use of students themselves in the instructional process.
4. There are some promising developments in educational technology and a gradual expansion of professorial willingness to use some of the technological devices.
5. There is also growing interest in new methods of measurement and evaluation, especially of the increasingly popular off-campus experiences presumed to have educational value.
6. There appears to be a steady move away from preoccupation with disciplinary-based courses and toward experimentation with more problem-oriented courses.
7. Amazingly enough, faculty members have begun to examine various psychological and educational theories which might make teaching and the curriculum more effective.

If such kinds of reform are to become effective and institutionalized several essential conditions must be present:

1. Strong imaginative presidential support is essential if any innovation or reform is to succeed.
2. The institution must be ready for a particular reform and there must be institutional willingness to provide substantial financial support.
3. Whatever is attempted must be reasonably congruent with previous institutional history and traditions.
4. There obviously must be technical competence on the part of the individuals directing a particular reform.
5. Above all, the reform or change must provide visible pay-off for students and faculty.

Chapter I

Vocationalism and Higher Education- A Paradox

SIGNIFICANCE OF VOCATIONAL EDUCATION IN COLLEGIATE EDUCATION

Although some American college professors have historically rejected vocational preparation as a mission for higher education, institutional practice and student aspiration have historically demonstrated the primacy of collegiate preparation for work. Professorial attitude was early revealed by the Yale faculty which remarked:

The course of instruction which is given to the undergraduates in the College is not designed to include professional studies.

Professional studies are designedly excluded from the course of instruction at college to leave room for those literary and scientific acquisitions which, if not commenced there will in most cases never be made.¹

Almost a century later, Veblen reiterated that posture, arguing

The University assumes (or should assume) no responsibility for its students' fortunes in the moral, religious, pecuniary, domestic or hygienic respect.²

And, a half century later, Barzun implied a variation on the same theme, contending that, "The nation wants a university in the honorific and not in the service station sense."³

But institutional posture and student motivations have contended otherwise. In 1878, the College of Wooster could assure parents of future students that

It is better to give a son a complete education than to give him a farm. He will then be able to earn far more in a year than a farm

¹The Yale Report (1828) in Theodore Rawson Crane, *The Colleges and the Public, 1787-1872*. (New York: Bureau of Publications, Teachers College, Columbia University, 1963), pp. 89-90.

²Thorstein Veblen, *The Higher Learning in America* (New York: Sagamore Press, 1957), p. 15.

³Jacques Barzun, *The American University* (New York: Harper & Row, 1968), p. 286.

could produce and he may besides wield a greater influence for good.⁴

Summarizing a century of growth in institutional vocationalism, the Educational Policies Commission pointed out that

Each decade has witnessed a significant increase in the number of occupations which look to higher education for their trained personnel. Each new educational program based on one of these occupations has had to win an academic place for itself, often against the opposition of established fields and always by experimental evolution. Yet, significantly, no profession that has turned over to the university the responsibility for preparing its future members has ever revoked this mandate. Not only has the education provided them been ordinarily of a higher character and given in shorter time than the occupation could secure by other means, but, by study of the occupation, higher education has contributed to its development.⁵

Such institutional willingness to engage in direct preparation for vocations is constantly stimulated by student demand for occupational preparation. The importance of a person's specific occupational position appears to have increased steadily during the 20th century, and students look to colleges and universities to help them achieve occupational goals:

College attendance is largely aimed at preparation for a career. Surveys of college students in every region of the country and in all types of schools without exception show that most students regard vocational preparation as their purpose. Parents, too, report that preparation for work is paramount. This is not to say that students and the general public reject the intellectual and social fruits of college but they tend to subordinate them to economic outcomes.⁶

The American system of higher education, contrary to practices in England and Western Europe, embraces different kinds of institutions, each of which assumes responsibility for some kinds of vocational, occupational or professional education. There are complex universities offering a wide range of undergraduate and graduate programs, as well as research. Liberal arts colleges and state colleges primarily offer curricula leading to bachelor's degrees. Community junior colleges and technical institutes typically have programs that can be completed in two years of study or less.

Liberal Arts Colleges

The archetypal American collegiate institution was the colonial college whose contemporary counterpart is the liberal arts college.

⁴Frederick Rudolph, *The American College and University*, (New York: Alfred A. Knopf, 1962), p. 65.

⁵*Higher Education in a Decade of Decision*. (Washington: National Education Association, 1957), pp. 58-59.

⁶*New Careers and Curriculum Change*. (Atlanta: Southern Regional Education Board, 1968), p. 9.

There are approximately 650 to 700 institutions which could be so described and whose faculties stress the values of the liberal arts and sciences for development of character, taste and intellect. Nonetheless, these institutions have always maintained a heavy, if unheralded, occupational and vocational emphasis, especially in the Middle West and in the Southeast. Fully half of liberal arts college students until the beginning of the 1970s were enrolled in vocational programs of teacher preparation. Just one indication of the significance of teacher preparation to such institutions was the attitude of many liberal arts colleges toward regional accreditation. During the early 1950s there were approximately 250 liberal arts colleges — with an average age of 75 years — which were unaccredited by regional associations and which had never made the effort to become so. However, when state agencies certifying teachers began to require graduation from a regionally accredited institution, those institutions suddenly actively sought accreditation, for they were aware that they would quickly go out of business without their clientele of aspiring teachers.

In addition to teaching preparation, liberal arts colleges during the twentieth century gradually entered what might be styled another form of vocational preparation, namely, to offer preprofessional and pregraduate courses of study. So significant did this activity become that several studies indicated that some liberal arts colleges, particularly in the Middle West, produced a disproportionately large number of future American scientists and scholars.⁷ These studies suggested to many other liberal arts colleges that preprofessional programs should be stressed and should actually determine the content of the liberal arts curriculum. Thus, during the 1940s and '50s, liberal arts colleges looked increasingly to the requirements of graduate and professional schools in deciding upon curricula. Earl McGrath and others contended that the emphasis on pregraduate and preprofessional education contributes to the decline if not the death of liberal arts education. It should be noted, however, that while many liberal arts colleges fancied preprofessional work as a primary mission, for the majority that goal never became a reality. Out of the 650 or 700 liberal arts institutions, probably no more than 100 became major producers of future graduate and professional students. The rest, however, did maintain a lively interest in occupational and vocational programs, often creating new courses of study to remain competitive with publicly-supported institutions offering a wide range of occupational and vocational programs. Thus liberal arts colleges began to offer degree programs in home economics, nursing and business, and a few institutions developed specialized curricula normally found in Land-Grant institutions. One college in Indiana offered a degree in vocational agriculture, while institution in Kentucky developed a degree program in Latin-American business. Consistent with this vocational emphasis, liberal arts col-

⁷Robert H. Knapp and Joseph J. Greenbaum, *The Younger American Scholar* (Chicago: University of Chicago Press, 1953); Robert H. Knapp and Hubert G. Goodrich, *Origins of American Scientists* (Chicago: University of Chicago Press, 1952).

lege departments of music developed a conservatory or professional posture, preparing people primarily to teach music in public schools and secondarily to enter other professional musical activities.

State Colleges

Almost as numerous as liberal arts colleges and equally as preoccupied with vocational programs are the state colleges and universities which evolved from normal schools into state teachers colleges and finally into complex multi-purpose state universities. Typical of institutions of this type is Kansas State Teachers College at Emporia which began as Kansas State Normal at Emporia and which at the turn of the century may have been the largest state normal school in the nation. In 1970 the college enrolled about 6,000 students, heading for an ultimate enrollment before the year 2000 of about 10,000 students. The majority of students are enrolled in teacher education, but vocationalism pervades the institution.

Dunham has identified a major reason for the popularity of state colleges:

For generations, school teaching has been, especially for girls, a way for socioeconomic advancement. In any institution which prepares the majority of its students for teaching, the students are, for the most part, from lower middle class backgrounds and are often first generation collegians. The straight liberal arts program has little appeal to parents who, not having been to college themselves, want to see a salable product after four years. For this reason many boys head for engineering or business. Girls have traditionally chosen teaching as a respectable position in lieu of marriage.⁸

Generally when these former teachers colleges begin to expand they do so in professional and occupational fields. For example, Western Michigan University now maintains schools of applied arts and sciences, business education, social work, liberal arts and sciences, a school of general studies and a school of graduate studies. The School of Applied Arts and Sciences reveals the heavy vocational interest with its programs in agriculture, distributive education, engineering and technology, home economics, industrial education, military science, occupational therapy, paper technology and transportation technology.

Representing a variant on the tendencies found in liberal arts colleges and state colleges are the programs in historically Negro institutions, whether publicly or privately controlled. In early years they all concentrated on teacher preparation and then gradually created other vocational programs congruent with occupational opportunities open to Negroes. Several institutions can be judged as reasonably typical. Morgan State College in Baltimore began as a Methodist institution before becoming state-supported.

⁸E. Alden Dunham, *Colleges of the Forgotten Americans* (New York: McGraw-Hill Book Company, 1969), p. 4.

Over the years Morgan graduates entered teaching more than any other field. However, as the college grew during the 1960s, bases emerged for a number of other vocational programs which are being transformed into separate schools and institutes. Thus Morgan has -- or has plans to create -- colleges of education, business administration, urban affairs, related health sciences, and engineering. Tuskegee Institute, a privately-supported and reasonably well-endowed institution, awarded its first degree in 1900 when its major emphasis was on agriculture and industrial training. Its subsequent development added education, engineering, home economics, food administration, mechanical industries, nursing, veterinary medicine and arts and sciences.

Community Junior Colleges

The rhetoric of officials in liberal arts colleges has stressed non-vocational values, but in practice liberal arts colleges are highly vocational. Meanwhile the rhetoric of publicly-supported community or junior colleges stresses vocational education as one of five major purposes of comprehensive junior colleges, yet in practice only a relatively small number of such institutions have reasonably comprehensive occupational programs. In 1953 it was estimated that five percent of 202 community colleges studied offered 80 percent of all occupational curricula available at the total group of schools. In 1964, it was estimated that less than two hundred of seven hundred community colleges had good occupational programs.⁹

While the results of junior college emphasis on technical-vocational education have not been overwhelming, programs are beginning to expand and to provide preparation for a number of different kinds of occupations. For example, programs exist or are being planned for business-related occupations such as accounting or salesmanship, health related occupations such as dental hygienist or registered nurse, research related occupations such as hydrographic technician or meteorological technician, engineering related occupations such as diesel mechanic or quality control technician, public service and personal service occupations such as motion picture operator, and consultation and agricultural occupations such as crop-duster or irrigation specialist. Leading theorists for junior college technical-vocational education foresee enormous expansion of technical-vocational education. For example, Norman C. Harris, whose anticipations are among the more constrained, indicates:

By no means does all post-high school technical education take place in junior colleges There is no doubt, however, that a major share of the task of meeting America's needs for middle manpower is the responsibility of the junior college.

Advocates of the community junior college would aver that for the great majority of youth today, post-high school education is a

⁹William K. Ogilvie and Max R. Raines, *Perspectives on the Community Junior College* (Appleton-Century Crofts, 1971), p. 259.

necessity. In another decade or two the person with no more than a 12th grade education will, they feel, be considered educationally deprived. Many, perhaps more than half, of the youth who enroll in junior colleges will be there for a one- or two-year occupational education program whose content should consist of about equal parts of specialized skill training, supporting technical and theory courses, and a general education core.¹⁰

Technical Institutes

Vocational preparation is much more sharply focused in special technical institutes, although the number of these may be declining and enrollments in them substantially smaller than enrollments in typical comprehensive junior colleges. The technical institute offers postsecondary programs generally related to the fields of science and technology, which are terminal programs of intensive instruction over a brief period placing heavy emphasis upon application. The first technical institute, the Lyceum, was established in 1822 but the most rapid expansion came about early in the 20th Century when such institutions as the Milwaukee School of Engineering (1903), the Franklin Technical Institute (1908) and the Wentworth Institute (1911) were created.

Most such institutes gradually evolved into more comprehensive and complex types of institutions, and those which have remained have, for the most part, concentrated on engineering-related programs. As of 1957 there were somewhere between 144 and 200 relatively single purpose technical institutes offering specialized engineering-related programs. These schools offered curricula composed largely of specific skills courses based on a reasonable background in mathematics and basic science, with but scant attention to general or liberal subjects. This fact reveals the most critical dilemma facing technical institutes if they are to be considered part of higher education with its typical stress upon features such as regional accreditation. The technical institute obviously has to produce capable technicians, but in aspiring to collegiate status it also necessarily accepts the responsibilities for broader development. The problem is how to do both.

It is difficult to forecast the future of the technical institute. The claims of theorists for junior colleges may well be realized in which case the functions previously served by technical institutes would be absorbed by comprehensive community colleges. But it is also possible that the continued preoccupation of the community junior colleges with college parallel programs may create a condition favorable to the resurgence of specialized technical institutes preparing people for immediate job entry.

Other ways by which individuals can prepare for vocations are discussed in Chapter II.

¹⁰Norman C. Harris, *Developments in Technical and Vocational Education* (Washington: U.S. Department of Health, Education and Welfare, 1967), p. 52.

Strict Vocationalism

The evolution of vocational programs in several different kinds of institutions suggests a sort of inevitability as well as a general agreement that educational institutions should properly be engaged in vocational or occupational education. Actually, of course, there are widely divergent but deeply held views concerning the nature of education and work which continue to divide faculties or other constituencies of educational institutions. Whenever a problem or issue involving education for vocations arises, at least three principal positions can be identified.

The first is identified with the names of David Snedden and Charles Prosser, who were instrumental in the development of vocational schools. Snedden believed that the growth of the corporate urban industrial complex was the best of all social organizations and that the school should rightly prepare people to enter appropriate vocational positions within that complex. He believed that human beings fell into ability levels which paralleled the vocational requirements of the society, and that through psychometric devices people could be identified who possessed each of the several levels of ability. Snedden wanted institutions to concentrate on "real" vocational education, by which he meant training programs designed to lead graduates to gainful employment in specific occupational fields. Since vocational education is of paramount importance, he argued, it should not be contaminated with liberal or general education. Thus he would support area vocational schools and reject the idea of comprehensive junior colleges. To him the content of the curriculum could be quickly reached through studying the requirements of recognized callings — medicine, teaching, bookkeeping, carpentry, printing, tailoring, cooking, and the like — and deriving from those requirements the specific skills necessary for successful performance. Snedden did not reject the need for general or liberal studies, but he assigned to them utilitarian goals similar to those he claimed for vocational education. Thus liberal education was intended to train the efficient consumer or utilizer of goods, services, art or music. The content of liberal studies could be established by the same means used to establish the content of vocational studies.

Associated with Snedden was Charles A. Prosser who developed the principal features of the Smith-Hughes Act, which was based on the premise that the purpose of vocational education is to help a person to secure a job, train him so that he can hold it after he gets it, and assist him in advancing to a better job. Prosser believed the content of vocational courses was specific and derived from examination of vocational practice. He also agreed with Snedden that the management of vocational training should be excluded from the hands of general or liberal educators, hence he came to favor definitely vocational institutions rather than comprehensive ones.

Strict Liberalism

Standing at the other end of a philosophic continuum is Robert M. Hutchins who believes that the only way education can help a young person make a living is to help him meet formal educational requirements for entry into certain occupations — and he rejects the validity of that form of certification. He has argued repeatedly that the aim of education is manhood and not manpower. When he examined vocational training in the United States or polytechnical education in the Soviet Union, he found the results to be appalling and hopelessly restrictive. He favors a curriculum dealing with reinterpretation of basic ideas concerned with the general rather than the particular. Thus an individual who might eventually work in a technological field should preoccupy himself with science and mathematics rather than with technological application. The object of study in liberal education is not to make practitioners but to help in the development of intelligent men and women. For a person wishing to learn how to do a vocational task, on-the-job training in some form or other seems to be the only legitimate technique. Hutchins clearly rejects the contention of vocational educators that the increasing complexity of the technology requires more and more specialized education. He suggests that

The paradox is that the more industrialized a country becomes the less it needs technical training of the kind usually supplied at the lower levels of education. I think it easy to demonstrate that technical training does not and cannot meet the needs of the individual or a society. Even assuming what those needs are supposed to be, technical training cannot help an individual be a success and, it can not help industry to prosper. When industrialization and mechanization have reached a high point, they minimize the necessity for such training. The object of mechanization is not merely to save labor; it is also to reduce through continuous simplification, the amount of training that is necessary to operate machines. The rapidity with which corporations trained men in the last war shows what can be done when technology has arrived at the stage that it has attained in the United States.¹¹

A Middle Ground

Standing between these two positions are the educational ideas of John Dewey, who continues to be one of the guiding forces in American education, even though his name is not explicitly associated with educational ideas and practices which derive directly from his thinking. Dewey rejected both traditional educational practices in liberal arts education and straightforward vocational education which focused primarily on preparing people for job entry. He was convinced that education should provide skills and attitudes for living in an era of science and technology, but he

¹¹Robert M. Hutchins, *The University of Utopia* (Chicago: University of Chicago Press, 1953).

would achieve that goal through a novel curricular structure. He would utilize vocation as a focus for the curriculum and as a device to lead students into other liberalizing experiences. Education through occupations, he believed, combines more of the factors conducive to learning than any other method. Gardening, for example, affords an entry into knowledge of the place of farming or horticulture in the history of civilization as well as into subjects such as chemistry, botany, or economics. This concern for vocations should be expressed at all levels but always in the ways indicated by him. He did not want colleges or universities to operate as service stations for special groups, and he believed that practical programs would simply be instruments to help students manipulate themselves within the system. But he rejected the tendency to accept as liberal only those subjects which campus scholars had traditionally called the liberal arts. The vocational component has tremendous potential for the liberalizing of experience, and a vocation could give an individual a sense of identity and meaningful relation with his society. Said Dewey:

A calling is also of necessity an organizing principle for information and ideas, for knowledge and intellectual growth. It provides an access which runs through an immense diversity of detail. It causes different experiences, facts, items of information to fall into order one with another. The lawyer, the physician, the laboratory investigator in some branch of chemistry, the parent, the citizen interested in his own locality, has a constant working stimulus to note and relate whatever has to do with his concern. He unconsciously from the motivation of his occupation reaches out for all relevant information and holds to it.¹²

In many respects, cooperative work-study programs, when carefully carried out, epitomize Dewey's view on vocational education. The work experience is clearly central but in such a way as to assign meaning to the other studies students follow.

TECHNOLOGICAL NEEDS FOR VOCATIONAL EDUCATION

Much of the justification of technical programs in two- and four-year colleges is based on the belief that special education is needed to train people to perform an increasing range of increasingly complex jobs. Much of the argument used overtly or covertly to convince young people to attend college is based on the belief that college attendance is the best route to better paying jobs and positions of greater preference. Much of the reasoning to convince voters and legislators to increase financial support of institutions of higher education is based upon the belief that the society requires highly prepared individuals to maintain economic and technological growth. The argument is advanced that government should provide education out of tax funds which will so increase students' ultimate earnings that the original tax investments will be more rapid through ultimate taxes on those increased earnings. The nature, substance, organization and even the viability of occu-

¹²John Dewey, *The Way Out of Educational Confusion* (Cambridge: Harvard University Press, 1931), p. 362.

pational programs of various sorts in collegiate institutions should depend on whether those beliefs are warranted. If what one studies in college bears little relationship to what one does vocationally, then the curricula in four-year bachelor's programs could be organized in a far different way than if there is a direct relationship between skills learned in classes and skills employed on the job. If it should appear that only at random do individuals who move through an occupational program in junior college actually move into and stay in relevant jobs, the curricular problems facing junior colleges would be substantially different than if those programs are highly productive of people who make those occupations their lifework.

The Case for Career Education

Evidence and opinion concerning these beliefs is decidedly mixed. Some such as Grant Venn, whose background is in the field of vocational education, believe that postsecondary education must assume vast new responsibilities for preparing men and women for entry into the changing world of technological work. Venn believes that technology has created a new relationship between man, his education, and his work and that education must assume responsibility for all students. This imperative can be justified solely on the grounds of the needs of the technology for skilled workers, or it can be justified more broadly on the ground that the technology has wrought fundamental changes in the relationship between man, his education, and his work.

Automation, which has supplanted human manipulation and control, has forced a change from manual to cognitive work — work which seems highly improved by formal education. Evidence of this relationship is found by examining the median years of school completed by individuals in major occupational groups: professional and technical workers have completed over 16 years of schooling, whereas farm workers and laborers have only slightly more than an eight grade education. Those differences have long existed, but many occupations on the technical, skilled and semi-professional levels have reached a point where they require higher levels of specialization and related knowledge best learned and taught within the educational framework. It would appear that the labor market is increasingly demanding greater technological competency; and that the sector of the labor market most rapidly expanding is the sector requiring the most education and training. Venn adds a note of urgency to this general argument by demanding . . . *more and better occupational education within the educational system.* More young people must be prepared to enter the world of work at the higher occupational levels where there is room for them and where they are urgently needed.¹³

The policies derivative from this imperative are quite clear. There obviously should be high school graduation, but also there should be free public education for two years beyond high school

¹³Grant Venn, *Man, Education and Work* (Washington: American Council on Education, 1964), p. 23.

available to everyone; and trade, technical and business education should be stressed in those years. Further, postsecondary institutions should so deploy their resources that education, training and retraining should be readily available to individuals throughout their lives. The content of those programs will in part be dictated by already perceivable changes in the job market. Those occupations which seem likely to grow the fastest are in the technical and professional areas, but there will also be substantial increase in the number of service jobs and distribution jobs, such as office and sales work. Such positions appear to require specific educational preparation, most of which should be offered in secondary institutions as a firm postulate of public policy.

A highly industrialized society, one with a "technological revolution" under way, must have a work force without serious discontinuities. Scientists, engineers, planners, "think-men," governmental leaders and professionals in almost every field are discovering that their effectiveness can be significantly improved, perhaps multiplied several-fold, by the contributions of semi-professional technicians and highly skilled workers in the middle manpower segment of the occupational spectrum.¹⁴

Public policies having implications for educational programs can be stated at an even higher level. Broad goals for the American society during the 1970s have been posited to include such matters as area redevelopment, improved health services, more effective social welfare and better uses of natural resources. If the society fully achieved a list of 16 goals which have been elaborated, an employed civilian labor force of more than 100 million would be required by the mid-1970s—a labor force trained and upgraded through vocational education. While the United States probably will not achieve fully all of its goals, it will, as a democratic and relatively wealthy nation be working at all of them. However, there will be differential emphasis placed, and those goals which apparently will be stressed are those activities which require specifically and highly trained individuals. For example, it seems inevitable that college and university facilities should be expanded to train more nurses, physicians, scientists, social workers and engineering technicians; that secondary school vocational education should be expanded to prepare people for careers as data processing machine operators, secretaries, and road machinery operators.

Although long tenure of a conservative public administration could conceivably alter efforts to achieve such goals, the impetus of three revolutions which took place during the 1960s is probably great enough to sustain efforts to achieve them. Those three revolutions were the pursuit of an economic policy aimed at effecting enough employment growth to make a meaningful dent on unemployment; the emergence of an active and affirmatively conducted manpower policy with the goal of providing a well-educated and trained supply of labor working under fair labor standards; and the challenge to the standing relationship between

¹⁴Harris, *Developments in Technical and Vocational Education*, p. 21.

work and income heralded by advancing technology and looking toward rising levels of living for all members of a generally well-to-do society.¹⁵

The various types of state and federal education and training legislation produced during the 1960s as outgrowths of those revolutions were based on some postulates which can be quickly summarized. They continue to be valid for planning educational and training activities in the future.

1. There is the belief that everyone *can* be trained and that even hardcore unemployed, given proper education, could be fitted into the work force.
2. There is the belief that everyone *needs* to be trained, especially in the light of constant change in the nature of vocations. Such training must be offered before entry into vocations but should also be offered for continuous retraining of people as the nature of the labor market changes.
3. There are regional differences with respect to manpower needs, given the mobility of the American population and the pervasiveness of changes in vocations. However, every region also requires a common care of educational and training efforts.
4. There is the belief that advances in vocational and adult education are a necessary condition for successful outcomes in training programs, thus older styles of vocational education are inappropriate. Vocational occupation programs must be much broader and must utilize more modern pedagogical devices.
5. Successful preparation for jobs requires early contact with formal educational activity. Hence education should be provided at the earliest possible age. It is also assumed that everyone can be guided, counseled, and motivated toward education, training and job placement.
6. A fundamental belief is that training and retraining represent economic growth-producing programs. Such economic growth, then, allows the belief that the persistent differentials in unemployment and poverty in the United States can be minimized and eventually eliminated. Of course, that long-run goal must be achieved gradually, and personal services occupations may provide a major employment arena for the transition to gainful activity of the jobless and poor.¹⁶

If such beliefs were fully warranted, an examination of appropriate educational curricula could be a straightforward, almost an engineering task. The assumption would be made of the positive relationship between education and work, and the task would be simply to discover those specific educational elements which most directly produced tangible and lasting occupational outcomes. However, there are emerging evidence and opinions contrary to

¹⁵Seymour L. Wolfbein, *Education and Training for Full Employment* (New York: Columbia University Press, 1967).

¹⁶This resume is based on Wolfbein, *Educational and Training for Full Employment*, pp. 35-133.

the conventional wisdom which are so persuasive as to require serious consideration before embarking on curricular ventures.

The Skeptical View

The search for evidence to support the belief that education is positively related to job performance and that therefore educational credentials may be appropriately demanded for entry into vocations has not been particularly successful. Indeed, some recent studies call such an assumption into question. For example, in a multi-plant Mississippi manufacturing company, it was discovered that educational achievement was inversely related to performance. In a Southern hosiery plant, it was discovered that work productivity was related to age, family stability and a number of internal organizational factors, but was not related with educational achievement among day-shift workers, and indeed was inversely related to achievements of night-shift employees. In a paper company it was discovered that the longer-tenured and more valuable employees had substantially less education than short-term employees. These were studies of blue collar workers. However, the same sort of pattern is found among white collar workers. There is no relationship between educational level and performance of Prudential Insurance Company salesmen. The performance of 500 bank tellers in 125 branch offices of a major New York bank was inversely associated with their educational achievements. Studying the performance of professional and managerial workers is much more difficult. However, a few studies seem to indicate that while salary is related to educational level, supervisory judgments of employee performance are not. Such studies, of course, do not prove that educational requirements are bad, or that there is no relationship between education and jobs. But they do raise doubts concerning the dogmatic assertions of those who argue that increased education is an imperative for job performance even in technical jobs.¹⁷

Similar questions can be raised concerning the economic returns from increased education. There are, of course, well known and quite gross data which show that college graduates have higher incomes than non-graduates, and there is also evidence to suggest that economic growth of the society is positively related to increase in educational level. However, the inference frequently drawn — that what is done while in college contributes to greater lifetime earnings — seems questionable or faulty. It has long been known that persons who graduate from college are brighter than persons with less education. It is also well known that college graduates come from more advantaged homes than non-college graduates. Careful analyses of the three factors — ability, socioeconomic background and education — present mixed results, but increasingly it appears that the "... principal economic benefit of a college degree is that it provides admission into fields that would

¹⁷Studies cited here are summarized by Ivar Berg, *Education and Jobs: The Great Training Robbery* (New York: Praeger Publishers, 1970), pp 85-101.

otherwise be difficult or impossible to enter"¹⁸ Thus going to college is a good financial investment for an individual in that he very likely will thereby increase his lifetime earnings. However, that appears to result because college degrees are used as screens into better paying positions, not because they provide specific preparation which is used in better paying positions. Such a conclusion is reinforced by studies of educational outcomes of graduates attending different kinds and qualities of institutions. Astin and Panos discovered that the scores a student makes on the three area tests of the Graduate Record Examination are almost completely independent of the quality level of the college he attends, the average intellectual level of his classmates, the financial resources of the institution and the level of academic competitiveness of the student body. Those achievement scores are, however, closely related to aptitude test scores made at the point of entry into college.¹⁹

Wolfe, after analyzing the Astin studies as well as others, finally generalizes that,

Measured by what a particular student will learn in college, it does not make much difference which college he attends. In other respects, including later earnings, colleges and universities do have differential effects, and it is advantageous for a student to attend the best college or university that will accept him. If, however, he cannot be admitted to or cannot afford to attend an institution of comparatively high quality, he will be money ahead later on if he enrolls in a less expensive institution.²⁰

The implication of such studies is not that education or college attendance has no influence on an individual's life, but rather that the impact of specific vocational preparation may not be as influential as has been presumed. Receipt of a college degree appears to be associated with higher lifetime earnings but not by as great a differential as has sometimes been supposed. College educated people do hold jobs and occupations which expose them to fewer risks and loss of income. They tend to exhibit a more continuous and less erratic job history, and they appear to have greater opportunities to adopt a personally preferred work load. Given these opportunities, it is but natural that college graduates are generally more satisfied with their work than are those who have not been so educated. College graduates also seem to be somewhat more adaptable in the occupational sphere. For example, they adjust quite well to automation and even exploit automation for their own purposes. Generally, college graduates tend to be somewhat more optimistic about their future economic condition, as well as to hold that they can adapt to even radically changing socio-economic conditions. In the opinion of one who has reviewed much data concerning outcomes of college attendance,

¹⁸Dael Wolfe, *The Uses of Talent* (Princeton, N.J.: Princeton University Press, 1971), p. 85.

¹⁹Alexander W. Astin and Robert J. Panos, *The Educational and Vocational Development of College Students* (Washington: American Council on Education, 1969).

²⁰Wolfe, *The Uses of Talent*, p. 99.

Higher education changes people and their tastes. It facilitates behavioral change, not just by providing the means to do so. It affects people's goals, values and reference groups. We found that people with college degrees much more frequently exhibit risk-avoiding behavior (as in the use of seat belts), provide for the education of their children and accumulate reserve funds. Education opens new vistas for people. While improving the means of accomplishing their aspirations, it also raises the aspirations. In particular, education expands time horizons. Adaptive economic behavior is based on an incorporation of tomorrow's needs into today's decision-making. In the knowledge society, the time lag between education training, the gathering of experience and its pay-off, in terms of career advancement and income tends to grow. Thus a household intending to raise its socioeconomic status must be increasingly able and willing to defer gratifications.²¹

But these values would seem to derive more from exposure to a broad range of experiences and to the opportunity to mature in a relatively tranquil and non-threatening environment than from pursuing specific occupational or vocational programs. The same point is made by Trent and Medsker who, after studying a large sample of high school graduates generalized that,

Although certain essential occupational skills can only be gained through formal education at the collegiate or sub-collegiate level, nevertheless a vocational training narrowly conceived may be more hindrance than help if the individual only learns to accomplish very specific tasks which may soon be outdated. It may be wise to place greater emphasis on the understanding of the nature of various occupational areas and on teaching the principles of skilled work so that they may be applied in each new working situation.²²

A similar lack of congruence between what precisely is studied in college and what graduates actually do occupationally is implied by the rather consistent finding that 50 percent or more of entering college freshmen have changed their career plans rather substantially four years later when they have terminated their collegiate experience.²³

ANTI-VOCATIONAL FORCES

A particularly perplexing issue which is likely to have substantial influence on the future of vocational or occupational programs in colleges is the changing attitude toward work, credentialing and preparation. Much of the argument of those who urge greater attention to technical, vocational and occupational preparation rests on a series of assumptions. It is assumed that American society, at least through the year 2000, will be sensate, bureau-

²¹Stephen B. Withey, *A Degree and What Else?* (New York: McGraw-Hill Book Company, 1971), p. 78.

²²James W. Trent and Leland L. Medsker, *Beyond High School* (San Francisco: Jossey-Bass, Inc., 1968), p. 268.

²³John K. Folger, Helen S. Astin and Alan E. Bayer, *Human Resources and Higher Education* (New York: Russell Sage Foundation, 1970), p. 216.

cratic, meritocratic, industrialized, urbanized and resting solidly on a base of scientific and technological knowledge. From these assumptions derives a presumed imperative to train people to use that scientific and technological knowledge and to credential them so that they can fit into the meritocratic and bureaucratic structures which comprise the major structural elements of the society. However, that view has been called into question by developments which should they flourish, could alter markedly what collegiate institutions do concerning vocational or occupational preparation. First, there is the counter-culture which began to flourish during the late 1960s and which may still become a potent force in the society. The counter-culture although it speaks in many different media, seems to have stressed several lines of argument. The urban industrial, bureaucratic, and meritocratic society is seen to be inhumane and antithetical to healthy, creative, human existence. Colleges and universities which ostensibly prepare people to fit into that kind of society, are judged to be little more than immoral assembly lines, processing people to assume vocational roles the impersonal society requires. Some people, particularly youth, have sought to escape that society with its stress on technological competency, and to create new social forms in which the principal survival skills would be self-acceptance and the ability to relate to others at a deeply emotional level. Should this point of view come generally to prevail, vocational education in schools and colleges would become considerably less significant.

Similarly, if, as others assume, the days of continued economic expansion are numbered on the earth, but especially if the United States uses up existing supplies of natural resources, the entire nature of work will change presumably in a less technical direction. Thus preparing people for leisure and a less sophisticated work style would be more important than preparing people for increasingly complex vocational roles.

Thus as one moves to a focused examination of occupational curricula it must be in a variegated context. There are mixed opinions as to whether colleges should engage in occupational education, although all colleges have historically done so. There are mixed opinions as to the sort of skills an advanced society needs and how they may best be developed. And, there is mixed evidence as to the contribution which formal education makes to the occupational skills and performances of the students.

Chapter II

Prevailing Curricular Practices

VARIETIES OF CURRICULAR PROVISION

Educational innovation, reform and change are for the most part reactions against prevailing practices. Hence an appropriate beginning for detailed consideration of possible innovations in education for occupations, vocations or careers is to examine recent practices. In making such a resume there is a difficulty of classification. Vocational programs are offered by bachelor's degree and two-year institutions, proprietary schools, business, industry and correspondence schools; through programs in adult education and cooperative education; and by area vocational-technical schools. In addition, vocational preparation is provided for college-age youth through such agencies as the Peace Corps, Job Corps and military service. It is recognized that these various modes are not mutually exclusive, but that each can be considered separately for illustrative purposes.

Bachelor's Degree-Granting Institutions

Virtually all bachelor's degree-granting institutions in the United States offer some form of vocational or career education. Even St. John's University in Maryland, which focuses on a curriculum using the great books of the Western tradition, is partially vocational in that its students move almost invariably into vocations requiring high verbal dexterity. Institutions make this vocational commitment explicit with different kinds of rhetoric. Thus one college posits as one of its purposes to

develop a life career motivation which sees vocation as a worthy means to become a self-directing person and to advancing the Kingdom of God on earth.

Another institution says that

each student needs a specialization for both educational and career purposes. This intensive study develops qualities of mind and character which come only from concentrating deeply on

some specific field of thought. This specialization also gives a student training for a particular career of his choice.

One of the oldest institutions in the country goes back to its original charter for the phrasing of one of its major purposes

preserving in the community a succession of men duly qualified for discharging the offices of life with usefulness and reputation.

Still another not only emphasizes preparation for vocations but further contends that work is never demeaning. The institution's program is intended

to demonstrate through the labor program that work, manual and mental, has dignity.

Bachelor's and higher degree-granting institutions all exemplify this vocational purpose through a variety of programs varying in size and complexity according to the size of the institution. In the 650 or so liberal arts colleges there will typically be special vocational programs in education, business and music. Some add such programs as home economics, agriculture, social work, physical education, engineering or technology. A number of church-related liberal arts colleges also offer specialized vocational programs for various kinds of religious vocations and callings. Typical of claims for these programs is the statement of one institution that

teaching is both an art and a skill. In view of this, prospective teachers should receive the education and training necessary to develop within the limits of their capacity, a spirit of dedication, a realization of their responsibility, a degree of instructional proficiency and a mastery of subject matter to an extent that they will be worthy of being entrusted with the directing of the educational experiences of our youth.

Typical of intentions with respect to business is the assertion of another institution that the purpose

... is to provide the fundamental background for understanding the principles and practices of modern business. The student may choose one of three primary courses of study in the department — economics, accounting, or business administration — which will give him a concentration in business and economics sufficient to prepare him for graduate study for employment in business or government.

Much less typical of liberal arts colleges are those programs in agriculture such as this liberal arts college listing:

The objective of the B.S. degree program (in agriculture) is to provide the student with a broad base of training designed to prepare him for varied employment opportunities with government agencies, business firms or educational institutions. It can also permit preparation for veterinary schools or graduate schools. This program appears to appeal to many students who have interest in working in agriculture, although no specific

employment goal, inasmuch as it provides a rather broad base from which to seek employment.

In addition to these, most liberal arts colleges make the assumption that the sort of training they can provide is ideally suited as preprofessional education for individuals going into the various graduate professional fields of medicine, law, dentistry, theology or graduate work in sciences. Indeed, the curricular organization of many departments implies that preparation for advanced work is their primary purpose.

In the more complex institutions, of course, the range of highly vocational programs is greater, with education, business, and engineering being the most frequently offered, and with other specialties such as social work, earth sciences, architecture or journalism being other relatively frequently offered programs. A complete catalog of vocational programs in 4-year institutions would include scores of offerings. And, of course, the more complicated institutions also offer the full range of preprofessional programs based largely in the Liberal Arts and Sciences.

The curricula in all these institutions reflect certain commonalities. First, there is a marked tendency for all bachelor's degree-granting institutions to evolve toward greater complexity of purpose and to proliferate programs. Thus the technically oriented institutions, such as Cal Tech or MIT, gradually add components of the humanities and social sciences and move into other vocational fields such as business and the performing arts. Institutions which once concentrated on teacher preparation gradually expand to include technology, home economics, nursing and the like. Even liberal arts colleges which once offered only preprofessional work and teacher preparation, over the years add business, music, home economics, nursing and occasionally some of the more esoteric specialties. Second, most curricula make provisions within each specialized program for work in general education or liberal education for purely professional work, and for some opportunity for students to elect courses of specific interest to them. One of the major arguments urging vocational work in a degree-granting institution in preference to a more specialized certificate-granting institution is that the specialized vocational work is placed in a context of liberalizing studies which seek to affect the individual's total life style, not just his vocational competency, and there is some evidence that the proportion of non-specific work in these vocational curricula has been increasing slightly for several decades.

In many respects the professional and occupational education provided in these American programs must be judged highly successful. Sir Eric Ashby, an astute observer of the American educational scene, remarks that

There is an unambiguous test for the value of vocational and professional education, namely, whether vocations and professions are manned by competent people. In the United States they are. American achievements in medicine, engineering, law, the sciences, humanistic scholarship, and also in the technical fields which serve these and other professions, are so impressive that the

content and style of education for these careers need not cause Americans much concern By and large, Americans can be proud of their American Education and satisfied with its quality.¹

However, there are some criticisms which can be leveled at vocational or careers curricula in four-year colleges. Aside from the rather gross rationale calling for some exposure to subjects in the liberal arts and sciences and some sequencing of professional courses moving students from basic skills work to more sophisticated materials, no particular theory of education or theory of curriculum construction can be inferred from stated programs. In one institution, students interested in biomedical engineering are told to prepare their programs in consultation with their advisor, while in another institution all students are required to take a highly structured course — drawing on engineering, physiology, anatomy, psychology, surgery and several other fields — that carries credit equal to half of the full major. A single elective is allowed in one business administration concentration requiring 34 hours and in the junior year all students are required to take a two-hour course in music and art (one wonders what sort of changes in behavior would be expected from that particular exposure). While in such fields as engineering, business and agriculture there is numerical conformity to national practices (i.e., proportions of credit hours devoted to liberal studies concentration and related fields), the actual substance comprising those proportions varies so much, institution-to-institution, that one is forced to conclude that no persuasive logic is being used to organize any given curriculum.

A related weakness is that students are rarely provided an explicit rationale for the requirement of certain courses. Some institutions do, of course, make a nod in this direction. But far more frequent is an instruction such as, "A minimum total of 40 semester hours in the basic study areas if required of all students," with no indication as to why those requirements are made and what students can expect from complying with them, except, of course, the final receipt of a degree. Presumably official statements such as those in college catalogues assume that more detailed orientation to curriculum is provided by students' advisors. However, the impression persists that student academic advising, especially in larger institutions, is relatively perfunctory, in the mistaken expectation that students have read the catalog and know what they are getting into:

College students seek and learn to make decisions for themselves about such crucial problems as marriage, a major, a vocation. However, they testify that they receive precious little help in learning to do so from their parents, their secondary school, or their college.²

¹Eric Ashby, *Any Person, Any Study* (New York: McGraw-Hill Book Company, 1972), pp. 40-41.

²Lewis B. Mayhew, *Contemporary College Students and the Curriculum* (Atlanta, Southern Regional Education Board, 1969), p. 1.

As one student testified, "As a matter of fact, when I put down chemical engineering I hardly knew what it was except that it dealt with chemistry."³

This lack of a rationale, coupled with the frequently criticized proliferation of course offerings, leads to still a further weakness. Presumably, preparation for a vocation can be obtained through a mosaic of courses and experiences with the separate pieces linked to each other according to some coherent pattern. However, when the number of discrete courses offered in a vocational field exceeds the number required for a major by three or four times, the likelihood of a student selecting the most relevant for his particular mosaic becomes remote.

Because professors may feel constrained to touch upon at least major components of a field, professional and vocational curricula may require students to attempt too many different things at the same time, thus producing a kind of academic frenzy. Generally, it appears that students in such fields as engineering, business, home economics or education are expected to take five or six different courses in a given term. Some fields in some institutions make virtually impossible demands on student time. Consider, for example, the likely life style of the freshman student at Kentucky State University who, in the first semester of the freshman year program in nutrition, is required to take general chemistry, college algebra, English composition, world civilization, introduction to home economics, introduction to foods, as well as freshman orientation, physical education and hygiene. If it is true, as some diary studies of student use of time have suggested, that students tend to study one course intensively, several others less intensively but still reasonably rigorously, while relying on a facile pen, Machiavellianism, pulchritude or a gift of gab to get by in the remaining courses, then such a program seems destined to produce superficiality. Furthermore, while little supportive data exists, it is logical to assume that the more complex technical fields require more course work and greater amounts of time for out-of-class preparation and problem solving.

Another weakness, more prevalent in small liberal arts institutions but still frequent in large or complex institutions, is the practice of offering more different courses than can be reasonably or honestly taught by a particular faculty. For example, one four-professor department of agriculture at a liberal arts college claims to offer animal husbandry, livestock judging, animal breeding, ecology and conservation of environmental resources, forestry and mankind, feeds and feeding, beef cattle production and management, dairying, livestock grooming and showing, forage and pasture, farm management, farm appraisal, fundamentals of animal nutrition, advanced beef cattle production and management, animal diseases and parasites, agribusiness and management, an animal science seminar, an animal technology internship and supervised work on special problems of interest to students. That program does not include the courses listed as being offered only on demand. The same phenomenon is found in complex institu-

³*Ibid.*

tions as, for example, the one renaissance professor at a middle-sized state university who offers Introduction to Archaeology, Old World Pre-History, North American Pre-History, Meso-American Pre-History, Methods in Archaeology, Theory in Archaeology and of course the departmental staff courses. Presumably, professors teach professional and vocational courses because they have particular competencies which they can teach to students; expecting such a range of competencies from any one individual can come perilously close to being fraudulent.

Educational theorists from Plato to Rousseau to Whitehead to Dewey have posited that learning should be ordered and consistent with the psychological stage of students. While theorists have interpreted the needs of various stages differently, they all suggest that some method of ordering experience is better than others. Yet when one examines the ordering of courses in baccalaureate programs for vocations and careers, no evidence can be inferred that courses are placed in time to conform to the psychological needs of students. In one program the freshman year is filled with the disciplinary courses in mathematics, physics and chemistry, while in another the freshman year is devoted to university-wide general education requirements. Some curricula deny any specialization until the junior year while others, presumably comparable, allow specialization from the first semester of the freshman year onward. This is not the place to argue the merits of a particular conception of the psychology of undergraduate students but only to observe that such psychological factors should be considered as part of an attempted improvement of the effectiveness of vocational programs.

A problem which may be more pronounced in larger, more complex institutions is that of liberal arts requirements in vocational fields being made in the expectation that they will satisfy certain broad humanistic or valued needs. Yet the courses required are designed to contribute to attaining certain disciplinary or professional goals for students majoring in the liberal arts. For example, a bachelor's degree program in criminal justice requires two specified psychology courses, but those two are the introductory courses necessary for a major in psychology; they give no explicit attention to matters relevant to law enforcement, corrections, rehabilitation or social welfare. Especially during the 1950s and 1960s engineering programs were severely criticized because they did not make their students conscious of value choices, nor did they provide understanding of the dynamics of a society that engineers' actions affected seriously. Engineering curricula have begun to reflect requirements in the social and behavioral sciences and in the humanities, presumably in response to those criticisms. Yet many of the courses required seem ill-designed for those purposes. A bachelor's degree program in electrical engineering technology requires two quarters' work in English: an introduction to Literature and a course in Great Themes Literature. The one required social science course is a one-term course on the principles of economics, described as

development of macro-economic analysis; review of national

income concepts, national income determination, fluctuation and growth, role of the banking system and the federal reserve system, government expenditures and taxation, international trade, balance of international payments

scarcely designed to contribute to the student's awareness of a social ecology within which the electrical engineering technologist will have to operate.

This is a particularly difficult problem to solve because courses specifically designed to achieve humanistic goals in professional education are expensive and reflect considerable curricular redundancy. Yet to rely on highly professionalized departments in the liberal arts and sciences means that the offerings while nominally germane are substantively irrelevant.

Now that the general education movement has passed its crest with prescribed interdisciplinary courses frequently required of all students regardless of their ultimate academic major, vocational and professional curricula have reverted to reliance on distribution requirements to satisfy the sensed need for some form of general education. Distribution requirements are so stated that students must elect a given number of courses from each of the broad domains of the natural sciences, social sciences and humanities. Distribution requirements seem premised on the belief that the educational need is for some understanding of how social scientists, natural scientists or humanists think and approach problems. Yet there is an illogicality in such a premise for it in fact equates the descriptiveness of a course in entomology, the abstraction of a course in mathematics and the sequential building of understandings in inorganic chemistry. Neither college catalogs, student handbooks nor, one must suspect, advisors, indicate to students the desirability of one way of fulfilling distribution requirements over another. Thus it seems almost accidental if a student elects courses which do comprise a consistent pattern. The distribution requirement seems educationally so illogical that a completely free elective system, making no pretenses of a *a priori* rationale, would be preferable.

Several other weaknesses can be mentioned quickly. Catalog descriptions and course outlines do not state course objectives in terms of specific competencies students are expected to develop, although a few of the more innovative programs have moved in that direction. Secondly, there is question about programs designed to be preprofessional. A case can be made, for example, that an undergraduate major in the arts and humanities would be at least as appropriate for a pre-law student as would a program concentrating on political science, history and economics. Blair Stewart in the late 1950s demonstrated that Oberlin students majoring in the humanities outperformed students who concentrated in orthodox premedical curricula when admitted to medical school. In general, insufficient consideration has been given to articulation between preprofessional and professional curricula.

Underlying many of these weaknesses is the inability of faculties for vocational or occupational curricula to resolve several

transcendent issues. The first is whether the components of a curriculum should be differentiated vertically or horizontally. One rationale holds that the only logical pattern for a curriculum is a structure which requires broad general studies followed sequentially by basic science studies, skills courses and actual practice. Only after students have assimilated basic scientific principles can they see the relevance of applied courses. However, critics of that point of view argue that denying an entering student early access to clearly professional courses frustrates career motivation and leads to disenchantment. Further, it is argued that if students are exposed to applied problems early, their subsequent approach to theoretical or basic science matters will be more focused, hence more effective. Thus there has grown up a counter-doctrine which offers scientific technological work and humanistic social work side by side throughout the duration of the program.

A second unresolved issue is the question of election or prescription. Those who favor prescription argue that under an elective system students gravitate toward easy courses or can end up with a distorted program which does not fit them for the variety of tasks they will experience in a work situation. Those favoring the elective principle contend that unless a student is allowed to choose most of his subjects, his tastes, interests, bents and talents may be ignored with a consequent lessening of motivation and general effectiveness in study. While in the 1970s there seems a swing toward more election, there is also a continuous drumbeat of those who contend things would be better if vocational programs could return to a prescriptive posture.

Another issue is whether the liberal components of professional curricula should be taken broadly or in depth. One rationale, which seems reflected in the distribution requirement posture, holds that students should take one introductory course in a liberalizing field each semester so as to sample as many disciplines as time allows. However, critics contend that this leads to superficiality. A better approach, they say, would be to select several sequences and require students to examine those in depth. In theory, deep immersion in a course in Western civilization, for example, can allow the engineering student to see the full implications of what he is studying for subsequent practice of engineering. Another element to this issue is whether introductory service courses are appropriate or whether there should be specially contrived and integrated courses. Using existing service courses — that is, introductory courses in a discipline — may place students in situations they could judge irrelevant to their needs. However, adherents to the opposing school contend that the only way one can know a subject is to begin with the basic principles, and that such a course is as appropriate for someone majoring in that field as for someone needing just a little exposure to it. Related is the matter of whether liberal and service courses should be restricted to and taught specifically for students in a given vocational specialty or whether professional students should be exposed to students from many different fields.

An issue involved in professional curricula and in most undergraduate curricula as well is the problem of foreign languages. Adequately studied, foreign language instruction requires a great deal of time. Tradition says that the college-educated person should have exposure to a language other than his native tongue. However, the other demands of an overly-tight professional program require deviation from ideal pedagogy. The professional faculty then is faced with the dilemma of giving *pro forma* obeisance to tradition through requiring a generally ineffective single year of foreign language or dropping the requirement completely. This issue could be resolved rationally according to empirical data. For example, what are the measured gains from a one-year exposure to foreign language? However, so deeply embedded in the academic mentality is this foreign language issue that attempts to resolve it have been, for the most part, highly emotional and political.

Junior and Community Colleges

Junior colleges, particularly publicly-supported junior colleges, have entered vocational preparation in a substantial way. From the founding of the junior college movement in the early part of the 20th century until the outbreak of World War II, few states saw the need for training less than professional workers. Where a need was recognized — as in New York, Oklahoma and Mississippi — special technical schools or vocational programs in high schools seemed appropriate. Junior colleges, then, concentrated on programs in the liberal arts and sciences deemed essential for transfer into a baccalaureate degree-granting institution. After World War II, however, and especially after the Russian launching of Sputnik, the United States society became aware of the importance of technical and other specialized occupational programs and junior colleges began to see themselves as community colleges. The conception of a comprehensive community college embraced several purposes:

1. to continue offering college parallel work for students transferring to a bachelor's degree-granting institution;
2. to provide a broad general education designed to equip students for living in the late 20th century regardless of when they terminated their formal education;
3. to provide adult or continuing education for its constituent community for vocational preparation, vocational upgrading or for almost any avocational purpose;
4. to serve as cultural center for its surrounding region which could bring people from many segments of society into interaction with each other as they engaged in educational, cultural or recreational activities carried on under the auspices of the community college;
5. to help individuals through counseling and guidance to clarify their life and career goals and make responsible decisions concerning those goals;
6. and to offer certain kinds of vocational, technical or careers education.

As a matter of principle, curricular theorists attempted to focus on preparation for immediate entry into middle-level occupations although this theory was not consistently followed in practice. The distinguishing characteristics of these middle-level vocations are some training beyond high school, some theoretical knowledge of mathematics and science, some manipulative skills for reasonably sophisticated tasks, some reasonably sophisticated understanding of human behavior and an understanding of how middle-level workers can assist their professional supervisors as well as work with those engaged in the skilled, semi-skilled and unskilled vocational roles. The potential as well as the limitations of community college involvement in this kind of occupational education are revealed in the observation that

The development and broadening of technical programs may very well be the two-year college's most significant contribution to higher education. More important even than such development and broadening can be their popularization. Although the technical institute offers preparation of high quality, its limited general education offerings and its obvious vocational orientation make it ill-suited to cope with the major problem confronting technical education today: the recruitment of well-qualified students. There is in education a pecking order of status preparations. At the pinnacle rest the liberal arts, followed by various professional curricula, then down through the technical programs to vocational and developmental offerings. Within the technical area a sub-hierarchy exists, depending upon how closely a particular curriculum relates to its professional counterpart. Thus professional nursing programs find high degrees of acceptance. The same thing cannot be said for all the engineering and industrial technologies or for many of the other technical courses.⁴

The intent of community colleges to achieve such vocational goals is revealed in the rather typical and almost stylized statements of purpose found in the catalogs of community colleges with a reasonable range of vocational programs:

To provide an appropriate variety of vocational and technical training for specific occupations and to offer opportunities to students desiring basic or extension training in a number of skills and trades.

Applied Arts and Science programs to provide preparation for semi-professional and technical careers in business, industry, and health fields. Each curriculum contains a blend of specialty courses and general education. Courses may or may not transfer to other colleges and universities.

Surveys indicate that still only a minority of all community colleges have developed comprehensive programs of vocational education. Among these there are, of course, a few regional differences reflected in the curriculum, such as a program in gunsmithing in a community college serving communities in Sierra Nevada

⁴Clyde E. Blocker, Robert H. Plummer, and Richard C. Richardson, Jr., *The Two-Year College: A Synthesis* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965), p. 287.

mountain range where hunting is still a way of life; and vocational curricula sometimes reflect fads, as when large numbers of institutions develop courses in electronic data processing regardless of whether those activities are carried on to any substantial degree in the surrounding service area. But for the most part community college occupational programs can be placed under 16 categories of programs:

agriculture	health services
applied fine arts	home economics
business	industry and mechanics
clothing technology	mass media of communication
church-related activities	miscellaneous services
education	public services
engineering	science
food technology	trades

Each of these categories serves a variety of occupations. In business, for example — the field offered most frequently by community colleges — Reynolds found programs preparing students for 35 distinct occupations, ranging from banking to restaurant operations to church secretary.⁵

A question which perplexes community colleges is which of the wide variety of occupational programs possible should the school actually offer. In part the answer (as in most of higher education) is to offer the courses offered by comparable institutions. And clearly local power elements have some say as to what is offered. Thus if local law enforcement agencies are strong, and if state law requires a specified educational level for employment, the community college very likely will offer programs to prepare or upgrade law enforcement officers. Other factors affect such decisions: job market requirements, program costs, competency and experience of faculty, increase in income for students completing the program, availability of supporting programs offering service courses, credential requirements, student desires and the informed opinions of both educators and involved lay groups. These factors are weighted and influenced by the existence of several deeply-held and conflicting points of view. One is that the community college should offer whatever vocational programs the immediate supporting constituency wishes. A second, somewhat more elitist position tries to separate those programs which are appropriate for colleges and those of lesser stature which should be offered by other kinds of institutions.

However, in an attempt to suggest a more rational basis for curricular decisions, Emerson suggests eleven criteria for adoption of a curriculum:

1. If the occupational curriculum is generally classified as semi-professional.
2. If the geographical area required to recruit sufficient qualified

⁵These categories are adapted from James W. Reynolds, *The Comprehensive Junior College Curriculum* (Berkeley: McCutchan Publishing Corporation, 1969), p. 64.

students for a program of optimum size is substantially greater than the area ordinarily encompassed by the high school district.

3. If the maturity demanded by employers for entrance into the occupation is beyond that of the average high school graduate.

4. If the prestige of a post-high school institution is needed to attract the type of student required for the program.

5. If on-the-job learning time required for the development of a full occupational competency is substantially less for a graduate of a post-high school program than for a high school graduate in the same field.

6. If the level and type of curricula requires high school graduation, including the completion of specified courses as a minimum foundation for undertaking the occupational study.

7. If the cost of initial installation of equipment and its upkeep and maintenance is beyond the fiscal ability of the high school district.

8. If the state proposes to meet the needs of students from widely scattered communities whose small high schools have little or no provision for occupational education.

9. If the state desires to meet the needs of people who went to work after high school graduation with no specific occupational training, and who later want to enter full-time training to prepare for better jobs.

10. If there is need for a wide range of evening courses in the community which require advanced technical equipment beyond that normally possible in high school occupational training programs.

11. If a suitable post-secondary educational institution is available, such as a junior college to which may be added appropriate occupational curriculums.⁶

While there is considerable commonality of programs, nonetheless community colleges do differ with respect to how faithfully they respond to presumed vocational needs. Thus one community college purports to offer vocational programs in 20 occupations. However, none of these is really a two-year program and all rely on students continuing in a bachelor's degree-granting institution before seeking employment. The program in forestry, for example, requires English, mathematics, chemistry, agriculture, humanities, speech, economics, history, physics and biology — not one of which is clearly vocational.

At the other extreme is the community college which combines its own functions with those of an area vocational school and offers career-oriented programs in business, communications technology, auto-body and fender work, child care center director, drafting, fire science technology and a dozen other specialties. Specific course patterns in these fields differ substantially from the patterns for those institutions which presume further education. Thus first-year students in a civil engineering technician curriculum take English, mathematics and social science, together with two year-long sequences in engineering technology. The

⁶Lynn A. Emerson, "Changing Technology Requires Planning for Occupational Education in the Future Community College," in *Perspectives on the Community Junior College*, ed. by William K. Ogilvie and Max R. Raines (New York: Appleton-Century-Crofts, 1971), pp. 246-247.

second year is spent entirely in courses related to engineering technology except for one elective course.

Technical, vocational, occupational or career programs in two-year community colleges experience many of the same difficulties as four-year college programs. Some seem formulated without attention to specifically desired behavioral outcomes. For others, the specified outcomes are more complex than could reasonably be achieved by the sort of program prescribed. But in addition there are a number of problems unique to the two-year institution.

Two-year institution faculties value a general or liberal arts component to vocational programs and make it a requirement for the degree of Associate in Arts; this posture may be made mandatory by State regulations, and it certainly is urged by the various accreditation groups which have stressed the centrality of general education in accredited institutions. However, general education courses, as generally taught, are highly verbal, and in many respects reminiscent of the academic courses taught in secondary schools. Students who did not perform well in secondary school but who are attracted to a technical or vocational field find these general education requirements insurmountable obstacles. If they avoid those courses or take remedial levels of the courses, they are denied an Associate of Arts degree — a credential which has some salability. Students who enroll in vocational-certificate programs having little or no general education component risk invidious comparisons with those who take prescribed courses in liberal or general education. A frequent palliative is for community colleges to develop several different tracks through the academic maze. Thus there may be sections of remedial English, sections of vocational English, sections of English designed to prepare students to take the orthodox freshman English course. Yet no persuasive evidence is available that so grouping students produces desired educational outcomes. And there is reason to speculate that forcing students into lesser levels of courses may contribute substantially to declining student morale and thus the extraordinarily high dropout rate which characterizes most public junior colleges in the United States. Further, mixing students of different ability may well be educationally more defensible than separating them. The student peer group remains the most powerful educational element in any college or university, and in the heterogeneous class the more capable students can serve as role models.

Even if a defense can be made for a liberal education component for occupational programs, there is little agreement on the amount or kind to be required. As in bachelor's degree schools, community colleges have generally opted for a modified distribution requirement without apparent consideration of the kind of social science or humanities course most relevant for the students in question. There is little agreement on appropriate balance between breadth and specialization, although Thornton has suggested perhaps 40 to 50 percent specific technical courses, 25 to 40 percent general education courses and the remainder electives.⁷

A second and obviously related difficulty is the much cited

⁷James W. Thornton, Jr., *The Community Junior College* (New York: John Wiley & Sons, Inc., 1966), pp. 190-192.

difference in respectability between academic programs and technical programs. Something on the order of 70 to 75 percent of students who matriculate as full-time freshmen in community colleges list themselves as transfer-bound. However, not more than 10 to 12 percent in that same freshman class eventually do transfer to bachelor's degree-granting colleges. It seems obvious that larger numbers of entering freshman community college students would be more suited to some program leading to immediate entry into a job. However, parental pressures, secondary school programs and guidance, the attitudes of community college administrators and faculty and the general status-consciousness of the larger society all force students away from the occupational curricula. The reality of this matter is revealed in a comment by Norman C. Harris, who has long been a strong advocate for the community college as the most effective educational tool available to insure diversity of higher education:

It still must be admitted that some two-year colleges take on the occupational education role reluctantly. Boards of trustees and citizens generally and many junior college administrators are ready to accord occupational education equal or nearly equal status with college parallel education. Faculty members, however, constitute a strong traditional block on many campuses which resists the introduction of significant programs of technical vocational education. Some typical attitudes of tradition-bound faculty groups are paraphrased herewith from actual statements verbal and published:

1. We don't have enough money, facilities and time for the good student, let alone those that aren't college caliber.
2. If we must have some vocational education for the poor student, locate these courses and shops off campus somewhere.
3. Now that we are flooded with well-qualified applications, let's raise the entrance standards and keep the riff-raff out.
4. Some of the semi-professional programs are O.K., i.e., business, nursing, engineering technology. But courses like welding, auto mechanics and cosmology don't belong in a college.
5. If things keep going this way, pretty soon we'll be regarded as nothing but a vocational school.⁸

A different and still unresolved problem is that of designing an occupational curriculum which will at the same time prepare students for immediate entry into a job and lay a broad foundation for career advancement. There is the argument that a broad theoretical education allows for career flexibility, whereas training for specific tasks limits an individual to continued performance of those tasks. Assuming for the moment the validity of the argument, the difficulty is to harmonize the required 30 to 50 hours of specific, task-oriented courses needed for job entry into such fields as tool and die work or radiation technology, with more theoretical work in mathematics and science which can enable a person to move into genuinely sub-professional and professional roles in engineering or medicine. Even if that problem could be solved,

⁸Norman C. Harris, "The Middle Manpower Job Spectrum," in *Perspectives on the Community Junior College*, ed. by Ogilvie and Raines, p. 255.

that still leaves the difficulty of balancing that overly tight two-year occupational curriculum with general education courses. It now is appropriate to call into question the underlying assumption that preparation for immediate job entry precludes subsequent growth. Perhaps personality factors, and not educational experiences, determine whether an individual allows his job skills to become obsolete.

A collateral difficulty is that of articulation between a program in a community college with immediate job entry as one goal, and the baccalaureate degree program in the same field. Appropriate programs can lead students directly into many engineering and technological jobs, yet those courses may not form appropriate foundations for upper division work in engineering. As noted previously, there is a tendency to lodge basic theoretical subjects in the first two years of a vocational program and to concentrate during the junior and senior years on more specifically applied subjects. If the community college follows that model, it may prepare students to take upper division work but leave them ill-equipped for technological jobs. Kintzer points out that in the late 1960s and early 1970s the community colleges increased substantially their occupational offerings; but that

unfortunately curriculum diversification invariably complicated transfer relationships, confusing both the process and attitudes toward articulation. When a community college initiates new occupational programs it must face the problems associated with the non-transferable status generally associated with such so-called career programs.⁹

While much of the available literature concerning community college curricula alludes to this problem, no realistic remedies are suggested: Cohen comes the closest to realistic recommendations when he suggests reducing

the number of courses by developing basic skills programs for a number of programs. The mutual relationships among trades and vocations make possible the development of common elementary courses for a wide group of programs and courses with varying levels of proficiency. If a common core of courses were developed for vocational nursing, registered nursing, inhalation therapy, radiological technology and other health programs, students could benefit by more flexibility and colleges could conserve their resources.

And he continues:

Common courses also may help overcome the narrow training for jobs that may become obsolete in a few years. Some educators recommend that half such courses be general education in nature but not necessarily of the traditional variety. For example, the human services career program, the general education courses in juvenile delinquency, theories of social change, criminology,

⁹Frederick C. Kintzer, *Middle Man in Higher Education* (San Francisco: Jossey-Bass, Inc., 1973), p. 146.

racism and family relations should be related to the students' careers.¹⁰

He also pleads for the transferability of many more educational courses.

Several additional difficulties should be mentioned briefly: first, while there is general awareness that an effective program in community colleges for vocations requires a great deal of counseling, by and large, this function has not been well performed. Entering freshmen must be oriented to the world of work and to the specific vocational opportunities the community college can offer. Then, students need a good bit of assistance in reaching appropriate career decisions and selecting courses. At the end of the junior college years students need further career counseling and placement counseling. Such a counseling effort would, of course, require a large and diverse staff, which is beyond the resources of most publicly-supported junior colleges.

A second presumed weakness is the failure of remedial work to equip students to move into coherent and reasonably elaborate vocational programs. There is much exhortative and descriptive literature on remedial programs, but almost no evidence on how well such programs perform. A few longitudinal studies, which compared college students with and without remedial work, suggest that remediation may enable the student to remain in school one or two more terms, but it does not apparently alter ultimate dropout rates nor insure any higher proportion of graduation.

How community colleges are proceeding to resolve some of these issues may be observed in several discernible trends:

1. There appears to be widespread recognition of the values of general education in all occupational curricula, with most recommendations suggesting that at least a fourth of the total occupational curriculum be in general education.
2. There is the trend to group curricula into clusters or families of programs having many elements in common. Thus, four or five health-related specialties might well be based on a single pattern of courses during the first year, deferring specialization until the second. Typical families or clusters would be business and office services, industrial and engineering technology, human services, public services, and agricultural technology.
3. There are an increasing number of short courses and one-year programs to meet the needs of fully-employed people, or people who do not perceive a need for a two-year program and an Associate in Applied Arts degree. As the shorter courses mature, they tend to mark student completion of the program with a certificate or other credential.
4. Community colleges, like all of American higher education, are seeking suitable programs for disadvantaged, low-achieving students. Many of these programs will be of the less-than-two-year variety, and some even warrant students

¹⁰Arthur M. Cohen and Associates, *A Constant Variable* (San Francisco: Jossey-Bass, Inc., 1973), pp. 149-150.

moving directly into a job after one semester of remedial work and one semester of work developing specific vocational skills. More frequently, however, these programs will consist of a two-year curriculum combining basic studies in communications, humanities and the social studies, survey courses in major related and technical fields, followed by a cooperative workstudy experience during which students receive pay and on-the-job training.

5. The cooperative work-study program, (discussed in greater detail later), increasingly attracts attention as a principal mode for vocational preparation.
6. Increasingly, occupational curricula are being so constructed that a student can change his mind after entering the institution and prepare for a higher level position without back tracking. This so-called ladder concept is clearly related to the concept of families or clusters of occupations and sounds plausible theoretically. Whether indeed the complexities can be solved is, of course, not known.¹¹

Area Vocational Schools

Many states have created an alternative to community or junior colleges known generally as area vocational schools. These offer postsecondary occupational programs of varying lengths from several weeks to several years. While these institutions offer some courses in the liberal arts and sciences (however, highly oriented toward vocational purposes) their main curricular effort is to prepare young people for immediate job entry. Courses are usually taught by individuals recruited from the occupations themselves and are organized to stress a great deal of applied experience. The fields offered reflect the economic structure of the state or region in which the schools are located but representative occupations would be electronic data processing, commercial graphics production, building technology, law enforcement, secretarial and office specialties and automotive technology.

In a sense these schools have resolved many previously cited issues and problems through clearly limiting their functions. They do not pretend to be the first several years of an orthodox college program. Nor do they seem concerned with the preparation of people for ultimate career positions. They do, however, contend that they offer programs which produce qualified workers, and the opinions of their graduates seems to verify that contention. In several states, for example, in the early 1970s, enrollment in state universities, colleges and junior colleges declined or became stabilized while enrollments in area vocational schools increased. Students were in effect saying that jobs were important and that schools which unabashedly agreed in that contention were the places they wanted to attend.

In states in which junior colleges and area vocational schools exist side by side junior college leaders argue that the two types of

¹¹Derived from Charles R. Monroe, *Profile of the Community College* (San Francisco: Jossey-Bass, Inc., 1973), pp. 97-100.

institutions should merge. However, area vocational school leadership resists on the ground that to merge would be to dilute the vocational programs through requiring students to spend excessive amounts of time on general education courses. Area vocational school leaders see their success as deriving from very concrete goals which can be achieved through carefully structured courses stressing performance. And they may be right. One cannot be but impressed at seeing Minnesota farm girls doing kidney transplants on animals after a six-month training period. They will never become medical doctors but the work which they do is certainly important.

Alternative Routes and Institutions

Although this monograph is primarily concerned with vocational, occupational or careers education in two- and four-year undergraduate institutions, some consideration of alternative methods of education is appropriate, not only as context but as possibly being suggestive of more effective curricular devices.

Apprenticeship Programs

The Carnegie Commission on Higher Education contends that there probably are more people attending colleges and universities than should be there, and that there should be an expansion of other means by which youth develops into adulthood and acquires requisite vocational skills. One such alternative is a system of apprenticeship programs which prepare people for work through learning on-the-job from an experienced technician. Every state has formal machinery for creating and regulating apprenticeship programs, and in some industries apprenticeship is still the principal means of preparing for job entry. However, careful observers of the apprenticeship system judge it generally inadequate to prepare the large number of skilled workers which the technological society demands. Trade unions limit the number of apprentices accepted, in part to protect the job equities of their members. Employers frequently restrict apprenticeships on the ground that it is more efficient to pay overtime to experienced workers than to pay lower wages to less experienced and less effective apprentices. If it can be assumed that as many as one-half million new skilled craftsmen will be needed by the labor force each year throughout the 1970s, then the annual number of 60,000 to 70,000 produced through apprenticeship programs seems pitifully inadequate.

Proprietary Institutions

Proprietary educational institutions and their curricula are within the purview of this monograph. They are for the most part conducted for the profit derived primarily from tuition. Their existence dates from the early 19th century, and at times they have enrolled more students than non-profit degree-granting institutions. In 1881 one estimate indicated 71,000 students enrolled in proprietary business schools as compared to 5,800 students en-

rolled in business programs colleges and universities. In 1966 there were an estimated 7,000 proprietary schools serving approximately one and a half million students as compared to the estimated 1.4 million students enrolled in two-year colleges. Students generally enroll in proprietary institutions for one or more of three principal reasons:

1. Flexible enrollment schedule and shorter course time.
2. More concentrated practical course content.
3. Better placement services.

Based on a survey of four metropolitan areas, a profile of proprietary education in the United States can be constructed. They are considerably smaller than non-proprietary institutions but have the capability of expanding quickly if the job market warrants. However, being dependent on the job market makes them vulnerable to the fluctuations of that market. For example, in 1971 approximately a fourth of the proprietary schools in the four cities closed, largely because of a weakening employment condition for computer specialists. Proprietary schools generally have a lower student-teacher ratio than do more orthodox educational institutions, and their students spend considerably greater time in laboratories versus classrooms than do students pursuing similar courses in community colleges and four-year institutions. The length of training programs, while varying according to specialty, tends to be considerably shorter. Their faculties while equally experienced are paid less and have fewer fringe benefits. Generally, proprietary institutions offer a limited number of programs and specialties combining two or more of those programs. The four principal fields are office work, computer operations, health fields and technical fields. These institutions have a median estimated capacity of between a hundred and two hundred spaces and median enrollment is approximately a fourth of that capacity. Although proprietary institutions do not provide as great a range of student services, and some provided are considerably more limited than in comparable degree-granting institutions, they do seek to provide considerable vocational counseling, offered typically by the teaching faculty.

While the list of programs is long, enrollments tend to cluster in a relatively few fields. Thus the bulk of the business or office enrollments are in the clerical, secretarial and typist domain. The plurality of enrollments in computer programs focuses on key punching and programming. Within the health occupations a fourth of the enrollments are in medical office specialties and another fourth are medical or dental assistant trainees. Programs involving electronics and electrical occupations are by far the most frequently used. Although the length of programs varies enormously, even within the same field, all are considerably shorter than comparable programs in non-proprietary institutions, with the exception of those in the technological fields. In those fields the length of training period approaches comparability between the two types of institutions. As a general rule, teachers in both proprietary and non-proprietary institutions appear to

have had comparable relevant work experience as well as comparable levels of education and comparable prior teaching experience.

Proprietary institutions, affected by the same forces causing innovations as non-proprietary institutions and in competition with those schools, have begun to modify their curriculum and instructional techniques. As more minority group members have enrolled as a result of various federal-supported training grant programs, proprietary institutions have begun to offer more remedial instruction. Some have tried to develop a core curriculum from which several specialties could derive. Particularly popular are new techniques for individually paced learning arrangements which present students with modules of material and directions for proceeding from one unit to another upon completion of a mastery test. Almost all computer curricula reflect the changeover in the computer industry, from punch cards to magnetic tape and disc media. Recent credentialing requirements have stiffened admission requirements and lengthened programs in the health fields. Similarly, there has been a tendency to expand technical curricula so that they approach the magnitude of college engineering programs, without so much mathematics and physical science. Since proprietary institutions rely on tuitions, their directors try to be sensitive to changes in the labor market, both to attract students and to insure their graduates jobs. Thus many are providing more intensive work-training activities, such as paid or for-credit internships. To keep programs cost effective, proprietary institutions have also begun to use instructional technology, individually paced learning and audiovisual techniques as substitutes for faculty time.

Students in both proprietary and non-proprietary vocational programs are motivated by the same desire: to develop skills needed for a job. They all expect to work immediately after completing their programs, and they are most satisfied with those aspects of the program which they perceive as contributing directly to vocational proficiency. Students in proprietary institutions expressed considerable satisfaction that they were learning practical skills and satisfaction with the small-sized student body and the job-skills orientation of their school. With respect to actual job placement, the record of proprietary and non-proprietary graduates are similar; something on the order of 60 percent quickly find jobs in the fields for which they were trained. Further, almost half of older alumni continue in jobs for which they were specifically prepared.

Those who conducted the four-city survey reached several significant conclusions. Generally, programs in both proprietary and non-proprietary institutions are effective in producing graduates with marketable skills in jobs paying high enough salaries to warrant the expense of training. In this regard, graduates of proprietary programs have no appreciable edge over those graduating from non-proprietary institutions. Indeed, non-proprietary school graduates realized greater economic gains from training than did proprietary school graduates. However, proprietary trainees were earning more before training. The training process itself is the same at both kinds of school. Staff, equipment and teaching tech-

niques are comparable. Although proprietary institutions are under rigorous economic pressure to keep their programs current and salable, they appear to change curricula no more frequently than non-proprietary schools.¹²

Some have argued that innovative and efficient proprietary education, could form a larger proportion of the vocational training mission, or could demonstrate major innovations which could help revolutionize postsecondary education. In actual practice neither is likely to occur. Vocational programs seem markedly similar at proprietary and non-proprietary institutions. They are taught by comparable people and respond to comparable forces in society. Whether infusion of more federal money through provisions of the Federal Higher Education Amendments of 1972 will bring about substantial curricular changes cannot be known, of course. But in light of the history of proprietary education this appears unlikely.

Programs in Business and Industry

Another alternative is to expect business and industry to provide extensive educational programs. The virtues of such an alternative are manifold. Jobs change so fast that worker obsolescence quickly sets in unless industry provides training programs. Much training requires expensive equipment which also becomes obsolete very quickly, so that only industry can provide it. Much work is so highly specialized that only on-the-job training can be effective, and active practitioners are the most logical teachers. If business and industry did assume major responsibility for occupational training, formal educational resources could be used for the broader or liberalizing kind of education. As to whether business and industry will assume a greater share of educational responsibility, the evidence is mixed. The American Association for Higher Education conducted a joint seminar for leaders from education, business and industry, and labor in 1957 which suggested a steadily increasing role for business and industry in formal educational activity. Clark and Sloan believed that the total educational effort of business and industry would probably someday exceed that of all United States colleges and universities combined.¹³ Other studies, however, do not corroborate these opinions. They discover that only larger firms operate formally organized education and training programs, and that these are more frequently for managerial and professional employees than for technical or skills-level workers. Norman G. Harris reflects an important segment of opinions on this matter when he argues:

Private industry, by and large, is not in the education business. It seems quite clear that, if the nation expects employers to educate

¹²The material on proprietary institutions is based on Jean M. Wolman, *et al.*, *A Comparative Study of Proprietary and Non-proprietary Vocational Training Programs* (2 Vols.; Palo Alto: American Institutes for Research, 1972).

¹³Harold F. Clark and Harold F. Sloan, *Classrooms in the Factories* (Rutherford, N.J.: Fairleigh Dickinson University, 1958).

and train their own employees, we shall have a sorry manpower situation indeed; and why should we expect this anyway? Why should society expect tax-supported schools and colleges to offer education and training for the future professional — the lawyer, the minister, the philosopher, the critic — and then say to the future technician, craftsman or clerical worker, "Sorry, but you'll have to get your employer to train you." This is the old dichotomy resurrected once more to haunt us with apparitions of the past. The voices of tradition speak again, saying, "Education for leisured man and for the professions is a just charge on the public purse but education and training for work should be paid for either by the worker himself or by his employer. This mold-encrusted legacy from the Middle Ages is one we can do without."¹⁴

However, the Carnegie Commission on Higher Education seems to expect increasing educational efforts outside of formal education. It argues that the cost of higher education can be reduced by eliminating reluctant college attendance, which it estimates is up to 15 percent of college enrollees. Elimination of the draft, increasingly important peer group pressure and greater independence from parental pressure are forces influencing young people not to attend college. Improved counseling, a national service program and more exit portals (e.g., Associate of Arts and Master of Philosophy degrees) would further reduce reluctant enrollments. The Supreme Court decision in *Griggs v. Duke Power Co.*, should lead employers to place less emphasis on college training.¹⁵

Correspondence Education

Correspondence education is a means of education presently used by a variety of institutions and agencies to train about three million students in the United States, many of whom seek post-secondary occupational skills. If the concept of an open university or university-without-walls becomes more prevalent, correspondence instruction is likely to figure even more prominently in American higher education.

Among the providers of correspondence programs are many reputable colleges and universities. The university extension concept has relied heavily on correspondence. Professional and trade associations such as the American Institute of Bankers have extensive correspondence programs. Business and industry use correspondence programs of worker training to supplement and follow up classroom instruction. The federal government, too, has been moderately active in such correspondence as the IRS Branch of Correspondence Study and the U.S. Armed Forces Institute to upgrade personnel. Still another source is the proprietary home study schools, which vary greatly in quality. And labor unions offer some opportunities for learning by mail as well. Unfortu-

¹⁴Harris, *Developments in Technical and Vocational Education*, p. 64.

¹⁵Carnegie Commission on Higher Education, *The More Effective Use of Resources* (New York: McGraw-Hill Book Co., 1972).

nately the poor examples have cast a bad light on all correspondence education.

Correspondence instruction consists of five essential components:

1. Specially prepared, self-explanatory materials arranged in a series of lessons.
2. Supplementary printed and other materials.
3. A series of exercises to be done by the student.
4. Evaluation of the exercises by a competent instructor and delivery of that evaluation to the student.
5. A final examination covering the entire course.

This means of instruction has several strong points as it concerns occupational education:

1. It is highly flexible.
2. It facilitates learning for people who have no ready access to a resident institution.
3. Students can proceed at their own pace.
4. Students who are uneasy in a group learning situation, perhaps because of previous failure, can experience success through correspondence education.
5. Since the student must demonstrate his mastery of the material at every step, he may prepare more thoroughly than for a classroom session.
6. Correspondence students who complete programs learn initiative and persistence as well as occupational or academic skills.
7. Instructional objectives tend to be more clearly defined when written course materials must be prepared in advance.

However, the method has distinct weaknesses as well:

1. Distance makes difficult teacher-student interaction, student-student interaction, and counseling.
2. While the cost in student time may be lower than for on-campus courses, preparation and revision of correspondence materials is expensive and time-consuming for the institution.
3. Correspondence education is primarily verbal. Many students find such learning difficult, and occupational skills requiring physical performance are not easily taught or evaluated by mail.
4. Resources such as libraries, laboratories and shops are not readily available to correspondence students.
5. Quality control of student performance is especially difficult.
6. The content of courses taught by correspondence often is more superficial than in similar on-campus courses.

There are some, such as Abraham Flexner, who find little real use for correspondence as a means to provide higher education, for vocations or otherwise:

Now correspondence courses may have their uses, and in a country where postage is cheap and superficiality rampant, they

are likely to spring up. But that the prestige of the University of Chicago should be used to bamboozle well-meaning but untrained persons with the notion that they can thus receive a high school or college education is scandalous. It is only fair to say that resentment is rife among the genuine scholars and scientists on the faculties of Columbia, Chicago, and other institutions.¹⁶

Others, however, feel correspondence can be increasingly useful as off-campus college programs become more common. Experiments underway to improve the method include use of audiovisual media, programmed or computer-assisted instruction based on more sophisticated psychological theory, and the use of a systems approach with cooperation between many agencies and institutions producing and distributing correspondence programs.

Adult Education

This monograph is primarily concerned with occupational vocational or career curricula in two- and four-year degree-granting institutions. As such, its primary focus is on the undergraduate student. However, as patterns of college attendance change — for example, there are greater discontinuities in the careers of college students — and as institutions involve themselves more and more in various forms of non-traditional learning, the experience, the content and the trends in adult education assume ever larger significance. Hence it seems wise to examine, at least briefly, this broad category of educational activity and to seek clues to solving problems in occupational curricula.

Adult education may be here defined as formal, organized educational programs offered with or without academic credit, typically to individuals beyond the normal college-attending age.

Adult education as it emerged during the 20th century derived from three major tributaries: the general university extension idea exemplified in Wisconsin; agricultural extension work developed in land-grant colleges and universities with close collaboration and support from the federal government, and the evening college movement that developed in private and particularly in urban universities, late in the 19th century but burgeoned in the first third of the 20th century. To these mainstays should be added the activities of hundreds of liberal arts colleges and technological institutions which offered many adult educational activities to their alumni and neighbors. By the 1970s adult education had been adopted in a wide variety of institutions ranging from a statewide system to the *ad hoc* efforts of private denominational colleges. During the 1960s, estimates of enrollments in adult education activities ranged from 2.5 million to 4.3 million with an annual growth rate of about ten percent. These programs included such activities as:

1. Regular university courses scheduled at times or places convenient for adults.

¹⁶Ossian MacKenzie, *Correspondence Instruction in the United States* (McGraw-Hill Book Company, 1968), p. 73.

2. Lengthy course sequences designed especially for adults.
3. Special activities such as concerts, exhibitions or lectures provided on campus for the academic and local communities.
4. Correspondence study programs.
5. Short course and conference programs.
6. Radio and television programs.
7. Provision of instructional materials to groups or individuals.
8. Programs designed to aid communities in analyzing and solving their problems.
9. Programs to aid special occupational groups.
10. The cooperative extension program.
11. Services provided for other public or private groups, such as for alumni.
12. Specialized program services for clubs and associations.
13. Production or publication of educational materials.
14. Organized services for foreign students and visitors to the campus.
15. Sponsorship of leagues or competitions in music, art, drama, speech and so forth.
16. Articulated instructional media programs.
17. Multimedia community educational projects.
18. Consultative or reference bureaus.
19. Organized tours.¹⁷

As institutions gain experience with those sorts of activities and interpret emerging individual and social needs more precisely, a number of trends or tendencies can be identified. Programs by which adults can work toward degrees are being made more flexible through proficiency examinations, independent study, short-term residential seminars, correspondence study and mass media programs, and through the relaxing of traditional residence requirements. Important new instructional variants are being attempted, such as training institutes, residential laboratories, informal courses, community development projects, multimedia package programs, telecourses, workshops, educational tours and many different informal educational services. Since so much adult education is carried on in an urban setting, adult education programs are focusing more on problems of the city. Much greater attention is being given to the unique needs of women as an educational audience, and institutions are following some of the early experiments conducted at Minnesota, Radcliffe and Sarah Lawrence. Possibly related to that trend is much greater emphasis on the arts and cultural activities. As adult education comes to deal with many specialized audiences having specialized problems, greater attention is being given to counseling, particularly as an aid to the independent study approach which figures largely in some of the newer modes of education. Instructors in adult education are being better prepared, to insure that they recognize the unique

¹⁷Malcolm S. Knowles, *Higher Adult Education In The United States* (Washington: American Council on Education, 1969).

educational needs of an older, more experienced kind of student. And the entire adult education movement is pervaded by the belief that education should be a lifelong activity and that the American society could well become an educating society, with individuals moving into and out of formal educational experiences throughout their lifetime. Such a conception, of course, demands more flexible and better articulated levels of education.

Illustrative of adult education activity in the 1970s are descriptions from several kinds of institutions:

American University College of Continuing Education

Established in 1965 as an Adult Education Center, the College currently offers a wide range of programs in continuing an innovative education which include undergraduate and graduate degree programs, certificates, institutes, workshops and community education centers. Enrollment of 6,500; 85 percent are non-degree students. Admissions requirement is to be in good academic standing or not to have attended any education institution for 12 months. Evening courses and academic advisement available on and off campus. Two semesters of four months each, inter-session and summer session. Cost on campus \$70 per credit hour; off campus \$50 per credit hour. No additional fees. Certificates are offered in the administration of justice, data processing, computer systems, operations research, scientific and technical information systems, research and development, management information system, English proficiency for foreign students, public relations and government public information, urban affairs and inner city-oriented education. Associate and B.S. degrees may be earned in the administration of justice and in general studies (the latter with options in technology of management and social science). Master of Science degrees are offered in the administration of justice, technology of management and teaching. Institutes and workshops are available in environmental systems analysis, English language, labor studies, business, government, and public affairs.

Santa Ana College, Santa Ana, California

Public community college serving the fastest-growing area in the United States and one of the most sophisticated business and industrial developments in the world. A wide range of certificate and A.A. degree programs are offered in continuing education programs. More than one-half of the student body is employed while in college. The following curriculum is illustrative of the offerings of the college: accounting, airline stewardess training, commercial art, autobody rebuilding and finishing, auto engine and chassis, automotive machinist training, bookkeeping, child development, computer science, data processing, diesel technology, drafting (architectural and mechanical), electricity, electronics technology, engineering drafting and design, engineering, preengineering, fire science, industrial mechanical engineering, industrial technology, insurance, library assisting, machine tool technology, machine transcribing, management development, manufacturing technology, medical office assisting, merchandising, nursing, police science, real estate, recreation assistant training, salesmanship, secretarial studies, supervision, surveying, and water utility science.

University of Missouri at St. Louis, Missouri

Large urban coeducational university; newest of four campuses of

the University of Missouri. Wide range of educational offerings for adults, including counseling and graduate and undergraduate courses. Credit by examination available under certain circumstances. Evening college enrollment, primarily adult, 81 percent of whom are employed full-time or part-time in over 700 different local industries, institutions and business organizations. Two semesters and a summer session. Tuition \$29 per credit hour or \$230 per semester for full-time students. Off-campus graduate and undergraduate credit courses and non-credit courses and conferences are administered by the extension division which enrolls approximately 5,000 students. Evening college degree programs. B.A. degree in biology, chemistry, economics, English, history, mathematics, political science, psychology and sociology. B.S. degree in administration of justice, business administration, chemistry, economics, education and physics. Graduate degree programs in business administration, economics, education, history, political science, and sociology. The extension division provides off-campus credit courses, non-credit continuing education programs, both on and off campus, and consultation services for individuals, agencies and organizations. These programs and services are available throughout the State. Extension offerings fall into four broad areas: continuing education for professionals; women, family and youth; business, industry and labor; governmental and community affairs.¹⁸

Clearly much activity in adult education is work-oriented.

Despite frenzied efforts to provide adult education, actual performance of colleges is spotty. While there are conspicuous exceptions, such as UCLA or The University of Wisconsin, general extension programs of universities fall far short of high effectiveness. They are frequently poorly organized, under-financed and, on many campuses, not well respected by on-campus faculty. Less than half of land-grant institutions offer an extensive range of programs attuned to the needs and interests of adults. Reasonably systematic programs are provided for public school teachers and administrators who can afford to participate because they receive more salary after earning credits. For other vocational fields, however, offerings resemble a potpourri of short courses with little systematic structure.

A major reason for the relatively poor performance of general extension programs is that they receive less than 25 percent of their support from state sources. Institutions generally seem to adopt the view that extension services are good things to provide if they can be made available largely on a self-supporting basis and if they do not require much time from major faculty members. Next to financing, the second most serious difficulty is finding well-qualified teachers willing to undertake general extension activities. It is difficult to persuade resident faculty to participate, which means that part-time and frequently under-prepared faculty members carry the burden of instruction.¹⁹

¹⁸Frances Coombs Thomson, *Guide to Continuing Education in America* (New York: Quadrangle Books, 1972).

¹⁹These criticisms are derived from Herman R. Allen, *Open Door to Learning* (Urbana: University of Illinois Press, 1963).

The problems generally facing general extension programs are reflected in the experience of University of California. In 1893 the Regents adopted the extra-mural instruction plan which officially founded university extension, but from its earliest beginnings the extension suffered from fiscal and administrative ambivalence. Faculty could not receive extra compensation for extension teaching, and funds were not provided for recruiting special teachers. Throughout much of the 20th century university extension was not clearly integrated into the mainstream of university activities and occupied the role of a mendicant. After World War II, however, the enormous social needs for better continuing education became apparent and the university attempted to make its extension activities a vital part of the university.

A major study of university extension, the first since the early 1930s, was made in the mid-1950s. Based upon that study a series of reforms was designed to refurbish the program, but that did not eradicate all of California's extension difficulties:

Compounding the internal stress, extension faced difficult developments on two fronts. In an economy move, the 1959 state legislature drastically slashed the support from 16 to nine percent of the expenditure budget. (It had been cut from 24 percent a few years before.) Simultaneously, the state colleges and junior colleges were seeking expanded jurisdiction which threatened to encroach upon university extension's programming and income

By 1965 the prospects of greatly expanded financial support for continuing education in American colleges and universities were opening a new chapter in university extension. While the needs of advancing professionalism were met through an increasingly specialized range of non-credit post-graduate offerings, the state-wide extension program broadened its focus to include group problem solving. Just as agricultural extension served rural populations, university extension brought educational resources to bear upon pressing urban issues.²⁰

Adult education has been more successfully and universally mounted by community colleges than by four-year institutions. Adult education programs in community colleges first were offered in the 1920s and the number grew slowly until about 1950. From 1960 onward, part-time enrollments, consisting mostly of adults, increased more rapidly in the community colleges than did enrollments for full-time students. As of 1970, approximately one-half of all community college enrollments were part-time students. For the most part, these schools make explicit in their catalogs that evening, extended day or adult education is one of the principal purposes of community colleges. Students who participate in these programs typically do so for economic reasons, hoping as a result of their further education to obtain a better job or to upgrade themselves vocationally. To a considerably lesser extent, adults enroll to fulfill avocational purposes, to

²⁰Vern A. Stadtman, *The Centennial Record of The University of California* (Berkeley: The University of California, 1967), p. 228.

mix socially with others having similar interests or for the sheer cultural or esthetic value of attending school. Obviously adult students are older than regular day students, but the median age is still a surprisingly low 25 years. The majority are there because they could not attend college earlier and now seek vocational upgrading through part-time education while they continue to work.

The potential curriculum for adult education is extremely broad, and course content may range over the entire field of human experience. However, junior college leaders are not agreed as to what should be offered from the vast array of potential curricular materials. Some contend that whatever the supporting public wants it should get. Others, more conservative, seek to restrict offerings to those worthy under the name "college." In practice, and consistent with reasons for adult enrollment, most courses fall into the category of occupational education. These may range from training in elementary skills in typing, metal work or drafting to complex two-year programs. Since most students seek a degree of some sort, the courses must fit into a two- or four-year degree program.

While adult education programs in community colleges seem to be evolving satisfactorily, a number of curricular issues must be resolved. The first of these is whether all adult education courses should be given college credit. Some community college leaders believe that a college should not cheapen its image by offering credit for courses in crafts or specific skills. Others argue that any course worth giving is worthy of college credit. This matter of credit is particularly vexing since the majority of students wish to earn college credits for their value as credentials. Related is whether adult students should pay higher tuition than day students. While the subject is still open for debate, general practice is to admit adult students on the same tuition basis as other students. A last issue involves the scope of the adult educational program and how it should be related to other agencies in the community also involved in adult education activities.

Cooperative Education

Of an entirely different order from the types of programs thus far discussed is cooperative education. However, it has evolved as one of the more successful vocational preparation devices available to colleges and universities. Cooperative education means a joint program of carefully articulated academic work and vocational experience with the following objectives:

1. The student's off-campus experience should be related as closely as possible to his field of study and individual interest.
2. The employment must be a regular, continuing and essential element in the educational process.
3. Some minimum length of employment and minimum standard of performance must be required for a degree or certificate.

4. The working experience will ideally increase in difficulty and responsibility as the student progresses through the academic curriculum.

Cooperative education is seen to have a number of significant values. It gives concrete expression to ideas first learned theoretically in the classroom and enables students to find meaning in what they are studying. Many students are unsure of themselves with respect to academic success, but satisfactory performance in job assignments contributes to satisfactory academic work. Cooperative education can also contribute to the career development of students by enabling them to practice the knowledge and skills learned in school, by teaching new knowledge and skills on the job, by allowing an opportunity to observe a range of vocations and professions being performed, by helping students gain a more realistic view of the world of work, and by enabling students to sample a number of career possibilities as they struggle for direction in their vocational lives. Hopefully also, cooperative education can provide a superior opportunity for students to develop realistic social attitudes and to mature in ways which routine class attendance does not allow.

Cooperative education programs are currently found in approximately 225 professional and liberal arts curricula, with a third of these restricted to engineering and technological fields. Some of the programs are mandatory, requiring all students to have some work experience. Or work experience may be one alternative available to students, along with foreign travel or other off-campus activities. Other programs are more selective, and student participation is restricted to those who have achieved a certain academic record. While only about ten percent of all senior and junior colleges offer mandatory programs, approximately half of all two- and four-year institutions offer some variant of cooperative education.

Cooperative education seems to be growing rapidly in community and junior college occupational programs, especially in business, engineering, industrial and agricultural technologies, and health occupations. Students in cooperative vocational programs generally follow a rather tightly prescribed curriculum with carefully integrated work experience. These patterns of alternating work and study can fit a number of different college calendars, with patterns ranging from half-day alternations of study and work throughout the academic year to the more general type in which students spend a full school term on a job, then return to academic work. Sequential course needs should determine work patterns, because those course experiences must be carefully related to whatever is done vocationally; students should have the requisite specialized courses before attempting to demonstrate a specialized skill. One issue which especially perplexes is whether academic credit should be awarded for the work experience. There seems general agreement that some credit should be awarded; but no agreement on whether it should be academic credit or simply credit required for an associate degree.

In many respects cooperative education is more ideally suited to baccalaureate degree programs because they allow enough time for adequate academic work and a rich vocational experience. The two-year cooperative education programs must be so tightly sequenced that frenzied students tend not to do justice to their academic work. In a baccalaureate program cooperative work-study can be arranged in a four- or five-year sequence. Whatever schedule is adopted, there are several elements without which the cooperative education effort is likely to fail:

1. The work experience should be carefully tailored to specific academic experiences.
2. Students should be carefully counseled on how to use their time away from the campus and how to integrate values of the work experience into academic work.
3. Students also should receive counseling to solve the normal problems of moving into a strange community, arranging living accommodations and social contacts so that the experience can be a reasonably pleasant one.

While cooperative education may produce definite economics for an institution — such as allowing double utilization of campus living and academic facilities — it is not a cheap undertaking. An effective cooperative education program requires substantial administration, not only in locating desirable work situations but in guiding students to them.²¹

Unresolved Issues

Those concerned with curricula for occupations, vocations and careers must constantly face unresolved — or perhaps unresolvable — issues. Some are no different from the issues in general or liberal arts curricula. However, a few have special significance for vocational education.

The first of these concerns the balance between general or liberalizing or cultural courses and specific vocational courses. Only a few proprietary schools argue that there should not be both types, but the amount and kind remain perennial problems. McGlothlin argues for a three-way split — one-third being devoted to liberal education, one-third to relevant professional-theoretical courses and one-third to clearly applied courses.²² Mayhew and Ford suggest a four-way division with one-fourth being basic or common studies, one-fourth broadening, liberalizing studies, one-fourth contextual studies, and the last fourth focused on the major.²³ In actual practice the amount of general or liberal studies required in undergraduate professional or vocational programs

²¹This brief survey is drawn from chapters in Asa S. Knowles and Associates, *Handbook of Cooperative Education* (San Francisco: Jossey-Bass, Inc., 1971).

²²William J. McGlothlin, *The Professional Schools* (New York: The Center for Applied Research, Inc., 1964), p. 36.

²³Lewis B. Mayhew and Patrick J. Ford, *Changing the Curriculum* (San Francisco: Jossey-Bass, Inc., 1971).

ranges from approximately ten percent to 25 percent. Then comes the question of the composition of that portion designated for general outcomes. It could be argued that the general or liberal component should deal with areas not covered by the vocational portion of the program. But when faculties are given a choice they opt for liberal courses close in content to required vocational courses.

A similar issue arises in the vocational component concerning the balance between the broadly theoretical and the definitely applied. The pendulum-like reaction to this issue is well revealed in engineering. At one time engineering curricula were highly applied and students received hands-on experience in the first year. Then came the point of view that undergraduate engineering should be essentially engineering science and that the applied and specialized skills should be developed either on a job or in advanced programs. Engineering curricula, in response to this changed point of view came to resemble curricula for physical science programs, with no hands-on experience during the first year and very little the second. However, both students and prospective employers began to complain that graduating engineers perceived themselves to be scientists, not engineers, and behaved accordingly. High school graduates entering an engineering program in which no engineering work was available during the first year tended to become disillusioned and to drop out. Thus recently there has been an attempt to restore applied courses to the first year, with courses in design being one of the more frequently offered. It is held that the amount of theoretical work required as a part of a vocational program is a determiner of how far a person can advance in his field. Thus the two-year community college program in engineering technology, with limited applied mathematics and physics requirements, is thought to limit the graduate in his vocational aspirations. The graduate from a broad engineering science baccalaureate program is thought to be considerably more flexible because of his theoretical understandings of mathematics, physics and chemistry.

This issue is also involved in the transfer problem. Unless a community college graduate in engineering has the appropriate theoretical and scientific credits, he finds relevant baccalaureate programs closed to him. But if the two-year college conforms to the expectations of baccalaureate institutions, the community college graduate is not particularly employable. What makes this problem such a maddening one is that there is no firm educational evidence to support either position. It is true that individuals cannot complete the baccalaureate degree in some of the technological fields without substantial work in theoretical and basic science, but this requirement might be the whim of professors and unrelated to actual requirements of the world of work. In the absence of such evidence one might hypothesize that there are no compelling reasons for including a specific theoretical component, except of English composition and mathematics, in a vocational curriculum. One could even hypothesize that mathematics is not essential except in a few fields such as agriculture, business, and engineering.

This last issue points directly to a third highly pragmatic one — whether a vocational program should prepare people for successful early entry into a given vocation or should provide the broader base presumed necessary for advancement to positions of high responsibility. The essential nursing skills can very likely be developed in a two-year program, yet such a program might not fit the nurse for higher ultimate responsibilities. There is almost no evidence to support either aim. With equal propriety it can be argued that liberal education provides flexibility for growth, or that the kind of undergraduate preparation provided is almost immaterial since careers branch with time. A nurse, accountant or engineer can become increasingly proficient in using a specific set of technological skills or can move into administrative or supervisory roles. The technological skills most likely could be best perfected on the job, while administrative and supervisory skills are probably unaffected by undergraduate liberal arts courses, with the possible exception of skills in using one's native language.

However, opting to prepare people for specific job entry, and assuming that requisite skills for advancement can be developed by other means leads to the dilemma of preparing people for a job market which is in constant flux. Presumably, many proprietary computer science schools prepared people well for a first assignment and teacher training institutions produced reasonably effective first-time teachers. Yet within a few years the job market changed and those specific skills were no longer in high demand. Of course it can be argued that a broader, more theoretical education, or education basic to a larger family of occupations, can provide the needed flexibility to enable individuals to shift aspirations as the job market changes. The magnitude of this issue for curriculum planners is well indicated by Folger:

Many college graduates who enter the labor force go into occupations that do not require degrees in the particular field in which they receive their bachelor's or master's degrees. Of those men with the baccalaureate degree who were employed full-time five years after college graduation, only about three-fourths who were engineering majors reported being employed as engineers; about the same proportion who majored in education reported that they were employed as teachers. Only one-fourth of the natural science majors worked in that field. Slightly over half of the business majors were in business or commerce; and less than five percent of the social science majors had positions as social scientists. Women with the bachelor's degree tend to be even less likely than men to go into the professional field that corresponds to their undergraduate field, although a large proportion of the women with majors in all fields reported that five years after college they held teaching positions, and probably many of them are teaching in the field in which they received the degree, although are classified so that we cannot determine how often this occurs.²⁴

Equally murky is the issue of how to judge the effectiveness of

²⁴John K. Folger, Helen S. Astin, Alan E. Bayer, *Human Resources and Higher Education* (New York: Russell Sage Foundation, 1970), p. 233.

vocational occupational or careers programs. One way is to compare offerings with requirements of specialized accrediting agencies or state agencies charged with credentialing individuals for a vocation. Yet those very requirements — typically developed by professors — rest on bases as infirm as those of college curricula. A second means is to observe job entry and job longevity of graduates of vocational programs. Doing this has been particularly difficult, for most collegiate institutions have not maintained accurate records of alumni. But even if accurate data were available, they still would not point to the specific elements in a curriculum which make for effective job performance.

A college experience apparently influences students in rather global ways. It

... leads students to make the break from family and local community and to develop an independence of spirit that is useful in our highly mobile society. The college student becomes less reliant on parents and assumes increasing responsibility for his own care, decisions, plans and activities. He has the experience of shifting for himself and making friends among strangers. Further, although it is not part of the formal curricula, college students learn the kinds of manners, poise, social skills, cultural sophistication and values that will be of use to them in their adult role in the middle-and upper-middle social system. This includes learning such things as how to choose appropriate dress, how to drink liquor socially, how to carry on intelligent discussion about a wide range of topics, how to preside over a group, how to put another at ease or make him ill at ease, how to present himself and his ideas in a manner acceptable to others. During the years of college, students usually extend their heterosexual interests and feelings in preparation for courtship and marital decisions. To some degree, whether intended or not, colleges function as marriage markets. . . . College helps young men and women to acquire the necessary skills, attitudes and motivations to be as well as to pick culturally adequate marriage partners for the social and occupational positions they will occupy. . . .

They also learn a number of organizational skills, attitudes and motivations that are necessary for success in the typical middle-class, upper-middle-class occupational world. This learning process includes more than the acquiring of specific knowledge and techniques relevant to careers. It also includes gaining the more general abilities and motivations, to meet deadlines, start and finish tasks, juggle several things at once and keep them straight, and budget one's time and energy.²⁵

Withey generalizes that college-educated individuals are in better control of their economic situation and less subject to the risks of unemployment, illness, or the obsolescence of skills or experiences.

They have objectively more opportunities and are subjectively better equipped intellectually as well as motivationally to utilize them. Moreover, they are more frequently able to plan ahead to

²⁵Kenneth A. Feldman and Theodore M. Newcomb, *The Impact of College on Students* (San Francisco: Jossey Bass, Inc., 1969), pp. 39-40.

provide for the future and at any point in time to profit from such provisions made in the past. All these changes have a bearing on how people behave in the market-place, whether as consumers in the commodity or credit markets or as workers, professionals or students in the market for labor and education.²⁶

Folger particularly predicts that the potential oversupply of college graduates in some fields can be absorbed by other occupations because

a college degree is important chiefly as a measure of intelligence and motivation and an indication of possession of a set of appropriate values and attitudes.²⁷

This position is strengthened by Greeley's finding that only 27 percent of college alumni believed their college had prepared them well for their job.²⁸ However, search for resolution does and should continue if for no other reason than the fact that not even a relatively wealthy nation can afford random, inefficient, capricious preparation for vocations. This is particularly true if opportunity for access to training institutions becomes universal. In succeeding chapters a number of real or suggested innovations and changes will be considered from which a few tentative hypotheses regarding resolution of these issues may be fashioned.

²⁶Stephen B. Withey, *A Degree and What Else?* (New York: McGraw-Hill Book Company, 1972), p. 58.

²⁷Folger, Astin and Bayer, *Human Resources*, p. 350.

²⁸Joe L. Spaeth and Andrew M. Greeley, *Recent Alumni and Higher Education* (New York: McGraw-Hill Book Company, 1970), p. 39.

Chapter III

New Developments

The status of postsecondary vocational or occupational education is that of a large, confused and varied effort based on no particular theory or set of principles. There are, to be sure, a few vague distinctions — for example, two- and four-year vocational degree programs are more theoretical than are programs in proprietary or area vocational schools, and include more courses dealing in language and in numbers. But for the most part occupational curricula, like liberal or general curricula, reflect innovations introduced to collegiate education during the brief but revolutionary period of 1870 to 1910. It was then that lectures, laboratories, course organization and departments blossomed, and drill, recitation and homiletic teaching ended in most places. It may be that the 1970s and 1980s will see some new pattern of curricular construction develop. While it is still too early to tell which innovations will last and coalesce into a new pattern, there is much discussion and considerable experimentation out of which may come a new style.

Career Education

Of greatest visibility is the concept of career education, whose spokesmen contend it is not just a new name for vocational-technical education but rather an entirely new approach to preparing people for the world of work. It is argued that in career education the curricula of all students are career oriented, and this career awareness and orientation continues throughout the student's stay in school. To be effective, an integrated and articulated curriculum must be developed for the total school program from kindergarten through postsecondary institutions. In the lower grades students would be informed and made aware of a broad spectrum of jobs and the required training for each. During the middle years students would explore in some detail the various occupations open to them, and in the high school all students would receive specific training in one or two vocations which they had selected. Students going on to college immediately would follow curricula related to a vocational interest developed in high school. Those not continuing their formal education at that time would be prepared to enter a job at once. According to the con-

cept, all students in high school and college would be engaged in specific vocational preparation, hence invidious comparisons between liberal and vocational education would be avoided.

At its extreme, the fundamental concept of career education is that all educational experiences — curriculum, instruction and counseling — should be geared to preparation for economic independence and an appreciation for the dignity of work. There are few examples of this concept in practice, especially at the collegiate level. The Dallas public school system has created and put into operation the Skyline Career Development Center which offers a variety of career programs to students from any Dallas high school — programs which are pursued alongside students' regular high school work. Reasonably well funded, the center offers some attractive programs dealing with clusters of vocations but affects only a small proportion of high school students and has not worked out a smooth transition into related collegiate work.

Some junior colleges have developed comprehensive occupational or career education. Los Angeles Trade Technical College, for example, offers instruction in more than 100 occupational fields, and Merritt College in Oakland offers more than 20 programs including administration of justice, x-ray technology, registered nursing, electronics and television engineering. However, such institutions have had difficulty relating occupational training to the traditional liberal arts courses within the institution. Additionally, little progress has been made articulating those programs with secondary schools or with bachelor's degree-granting institutions as required by the concept of career education.

The essence of career education is an integral process beginning when students enter kindergarten and continuing until they leave the educational system. This implies a continuous evaluation process. Yet when evaluation is done, whether of inputs or outputs, it is still segregated by level of education.

The concept of career education may be too far ahead of available technology. Career education is a complex idea which requires a systems approach to development, management and evaluation. While the concept of a systems approach to education is just as ephemeral and esoteric as the concept of career education itself, the idea should not be discarded. One can visualize schools and two- and four-year colleges near one another trying elements of career education in some uniform way. Elementary schools could stress vocations available in the region, high schools could intensify this effort, and junior and four-year colleges could create programs related to those vocations.

While educational systems are already too large for complete adoption of the concept, more could be done if schools and colleges would follow a rational reform strategy. Such a strategy would seek to change such negative features of the vocational system as isolation of schools and colleges from the economy, institutional fragmentation, separation of vocational from academic education, program inflexibility, poor supportive services, bad management, lack of program coherence or an adequate intellectual base, inadequate funding patterns and lack of responsiveness to outside pressures for reform. In addition, several positive

reforms should be considered. The system of progression in vocational education should correspond to the developmental needs of people as they mature. Programs at all levels should deal with clusters or families of occupations, not specific jobs. And above all else, articulation between the levels of education — especially between high schools and community colleges — should be pressed.¹

COUNSELING AND GUIDANCE

Such close articulation is impossible without consistent and sophisticated counseling and guidance. If even a few of the educational reforms suggested in the early 1970s are realized, there should be a major expansion of counseling and guidance activities and a development of new techniques. The Carnegie Commission on Higher Education has suggested hundreds of reforms, among them:

- creating a new academic degree structure
- making greater use of off-campus learning experiences
- attenuating the length of time required to complete degree programs
- routing many students into non-traditional modes of development and entry into adult life
- providing for continuous life-long learning
- providing to every young person two years of free postsecondary education to be taken whenever it seems reasonable to him.

To be effective each of these reforms requires that information about educational and occupational opportunities and counselors be available to help each individual make wise decisions.

Vocational counseling is not a recent development, of course. In 1909 Frank Parsons urged that wise vocational choice required clear self-understanding, knowledge of job requirements and the ability to think clearly about both.² But the vocational guidance movement did not flourish until after World War II, when millions of ex-service men and women had to be reinducted into civilian society. Most campuses created offices of testing and guidance to provide needed guidance, and private agencies such as Science Research Associates created substantial catalogs of guidance material. This was also the period of intense use of such aids as the Kuder Vocational Preference Inventory and the Strong Vocational Interest Blank, designed to direct people into vocations consistent with their interests.

Most colleges and universities never had enough manpower to insure a majority of their students good and sustained counseling. But the post-war period did produce much research and theory to support expansion of counseling and guidance should increased

¹David Rogers, "Vocational and Career Education: A Critique and Some New Directions," *Teachers College Record* (May, 1973), p. 497.

²Frank Parsons, *Choosing a Vocation* (New York: Agathon Press, 1967).

financial support become available. John Holland, for example, developed a typology of personality and argued that successful vocational choice depended on the proper match of personality type to job:

Type	Qualities	Vocational Preferences
Realistic	Masculine, aggressive, physical, concrete, conventional	Electrician, plumber, surveyor, mechanic
Intellectual	Task oriented, asocial, unconventional, thought oriented.	Anthropologist, astronomer
Social	Sociable, feminine, responsible, humanistic, verbal, non-intellectual	Counselor, social worker
Conventional	Conforming, structure seeking, materialistic	Bank teller, bookkeeper
Enterprising	Verbal skills, dominating, status oriented, leader	Executive, lawyer, manager
Artistic	asocial, feminine, seeks self-expression	Author, artist

Source: American College Testing Program, *Career Planning Program, Counselors Manual* (Iowa City: American College Testing Program, 1972), p. 14.

Ginzberg saw vocational choice as a largely irreversible process in which compromise is an essential ingredient of every choice. Developmental periods dictate the kind and amount of counseling and guidance required. David Tiedeman saw the process as moving from differentiation, with considerable fantasy, to integration as the individual learns to live with his choice.³

Such theories have provided a base for several new attempts to solve the vocational guidance problem. The American College Testing Program has developed a guidance-oriented system for collecting, integrating and reporting information relevant to students' career planning, and institutions' administrative planning. This career planning program assumes a constantly changing world of work and increased significance of guidance to individuals seeking to cope with those changes. In the program, a student completes a career planning profile in the last years of high school which reveals interests and abilities. This information is used by the student in a structured interview with a counselor to explore such facets as the student's concerns and feelings about work relevant to career decisions. Data from these sources are then summarized for each student and presented to him with descriptive materials describing six clusters of possible occupations with which the student can compare his own interests, feelings and abilities. Copies of this student report are routinely sent to the individual's

³*Career Planning Program*, pp. 11-17.

high school and to colleges to which he has applied. Presumably, then, a cumulative vocational planning file has been started which, with aid from counselors, can help students make both short- and long-term decisions. So described, the program does not sound much different from earlier formal schemes. However, the career planning program is based upon much recent research regarding the relationship of abilities, interests and prior experience to vocational success and satisfaction, and is tailored more to a fluid job market.

The College Entrance Examination Board, which historically has chiefly helped colleges select students who can profit from and succeed in the kinds of programs each institution offers, has now decided to expand its activities to provide new services essential to vocational guidance and selection. While much of its planned effort is not yet operational, the recommendations upon which the CEEB is working reveal significant new developments in vocational guidance.

The first of these is an elaborate computer-based system which would receive detailed information about colleges and their programs, about students and their interests and abilities, and about requirements of clusters of vocations. This comprehensive interactive system would allow students to simulate the decisions which must be made upon leaving high school, and would allow both colleges and individuals to make actual choices. Such a system has as yet not been constructed although much of the technology is now available. However, in essence it would use technology to solve in part the manpower problem which has plagued vocational counseling.

A second effort is the creation of regional counseling and guidance centers, independent of schools and colleges, which can provide vocational information and testing and guidance for the college-bound and for those seeking other avenues toward a satisfying vocation. These centers, created especially to fit the needs of those wishing continuing education or non-traditional education, would offer testing and advisement services, systems for granting equivalency of credit, courses in guidance to alleviate the counseling manpower shortage and on-the-job training for guidance workers.

The third direction of probable CEEB expansion is the development of batteries of tests to aid job entry, similar in complexity and universality to the Scholastic Aptitude Tests, the Advanced Placement Tests and the Preliminary Scholastic Aptitude Tests. The Board's programs in the past have been geared to the college-bound; the "other half" of the high school graduating class has been relatively neglected. As a first step to rectifying this neglect, the Board has been urged to discover traits, aptitudes and competencies that are positively related to various initial employment opportunities and to non-college opportunities for further training and education. From these inputs will be constructed measures which, when used with the more traditional measures of academic aptitude, will produce a single comprehensive testing program, taken by all students and applicable for college or job entry guidance. If such a development were to transpire, the

Board's name might appropriately be changed to the "Career Entry Examination Board."⁴

Implicit in both the efforts of the American College Testing Service and the plans of the College Entrance Examination Board is a belief in the necessity of guidance for vocational choice and preparation and an awareness that ways must be provided for students to do much of the work if manpower deficiencies of counseling and guidance are to be solved. This concern underlies a number of recent experiments with counseling and guidance.

At Southwest Texas State College, an institution that grew rapidly during the 1960s, freshmen attrition had become excessively high due to student inability to solve problems of vocational and educational planning and to survive academically. The institution realized that this situation might be solved through counseling but did not have the resources to provide adequate professional counseling. As a substitute, which proved even more worthwhile than professional counselors, upper classmen were trained to counsel freshmen students. They were made familiar with the choice problems the freshman faced, the tests used by the institution, and techniques and strategies for counseling. Then with the help of especially prepared manuals they worked with freshmen, first in large groups, then smaller ones and finally, when necessary, with individuals, interpreting test results, identifying deficiencies and suggesting courses of action. Results were dramatic as student grade point averages improved, choice of major became firmer and morale became higher.

A similar effort was undertaken at Keuka College in upstate New York. That institution was also concerned with high attrition rates and freshman indecisiveness about educational and vocational goals. Students identified as potential dropouts were invited to participate in weekly group counseling sessions focusing on resolving their concerns and problems of educational and career choice and problems of survival. In the initial year, which did result in sharp reduction of attrition, two faculty members conducted the weekly seminars. But by the second year some of those who had gone through the program were able to organize and conduct similar seminars for the new crop of students — with apparently comparable levels of success.

A variant on this use of students was an experiment at the University of Virginia which attempted to demonstrate that specially trained graduate students could, through group counseling sessions, assist other students with career planning and job placement after graduation. First graduate students were trained in techniques of career counseling through careful analyses of tape recordings of counseling and job interview sessions, and through seminar discussions of the literature of career counseling. The then partially-trained students began work with juniors and seniors for periods of five weeks to clarify their perceptions of jobs and job requirements and show how they could better display their competencies in job interviews.

⁴For a critique of the Board's efforts see Commission on Tests, *Righting the Balance*, Vol. I of *Report of the Commission on Tests* (New York: College Entrance Examination Board, 1970).

Still another approach, this one using the student himself, is the use of simulation games in which students make hypothetical decisions about careers, receive feedback on implications or consequences of choices and are gradually led to greater understanding of the interaction between decisions regarding occupation, education and family life and the factors affecting success and satisfaction in those areas.

TESTS, MEASUREMENT AND EVALUATION

Fundamental to the concepts of career education and career counseling are new and varied uses of tests and measurements. In a sense, the testing movement developed alongside the counseling and guidance movement, although it gained a greater measure of sophistication earlier and had already evolved into several different tracks by the end of World War II and by the 1960s had five components:

1. The search to measure general intelligence or aptitude for academic or complex intellectual work.
2. Attempt to measure educational effectiveness through comprehensive tests of academic performance.
3. Efforts to measure underlying attitudes, values and personality variables.
4. Efforts to assess biographical factors more precisely and to use them in predicting various kinds of performance.
5. Challenges of orthodox testing for evaluation of minority or disadvantaged groups and for non-traditional learning.

It is against this backdrop that new developments in measurement tests and evaluation with respect to occupational education must be viewed. The theoretical dimensions seem relatively clear. Admissions to various programs should be relatively open but with different sorts of differential aptitude and interest tests used to help guide individuals into wise vocational choices. Carefully structured courses should lead students from one sequence of activities to the next, with completion of a test measuring competency or mastery allowing a student to progress. On the assumption that real life and occupational experiences deserve credit, the educational worth of such experiences should be validated by measures considerably broader than paper-and-pencil tests. In the belief that entry into an occupation or receipt of a credential should rest on something other than accumulation of course credits, new kinds of tests should be developed which can assess ability to fulfill requirements of the job. Because traditional means of assessment have discriminated against culturally different people, new methods of performance evaluation should be developed which will not rely on culturally determined language and mathematical aptitudes. On the assumption that many people receive much of their education through extended degree programs or in universities-without-walls, their competencies and progress should be measured by carefully prepared and evaluated tests and inventories.

However, few examples can be found of schools implementing those goals. Gould and his associates have identified the problems of evaluating non-traditional learning.⁵ Because much career education is non-traditional, the issues they cite are relevant.

It is necessary, they say, to evaluate both the achievements of individuals and the quality of educational programs by measures based on standards of validity, reliability and practicality. Such measures must be usable anywhere because many non-traditional learners cannot gather at a central testing point and evaluation of achievement should be possible regardless of how learning is acquired. Tests should also be teaching-method free.

The current external examinations — CLEP general and subject examinations, USAFI Subject Standardized Tests, etc. — offer a starting point for developers of new evaluation tools. A much wider range of achievements must be measured, however, and a broader palette of evaluation tools is needed. Objective tests are helpful in some kinds of learning, but they are too expensive to prepare for seldom-tested fields and are inadequate for evaluating performance skills. Essays, short-answer tests, dance performances, welding demonstrations, invention of technological devices — all these and more may be appropriate tests of achievement. Some new means may be needed.

Care must be taken to assure that evaluations are reliable and based on clearly defined criteria. The traditional normative approach to evaluation has both philosophical and financial shortcomings. Perhaps absolute standards or some new approach may be developed in some fields. Evaluation experiments should be done using peer group ratings, supervisor ratings, self ratings, new media and other techniques so that appropriate means of judging achievement can be found. Coordination of such research by the federal government or by some new organization is needed.

The issues which Gould describes are not likely to be met under present modes of financing or budgeting for instructional manpower.⁶ The creation of a reliable, valid, objectively scored test question requires about an hour's work on the part of an experienced test writer. The reliable grading of a piece of written work, an oral presentation or a complex performance requires *a priori* establishment of performance criteria, a technique for observing and recording behavior and some systematic method for assigning weighted values to different elements of performance. To use non-test predictors of academic or job performance also requires identification of relevant factors (e.g., leadership or ingenuity), some means to identify whether an individual possesses them and the relative weight to be assigned each. As of 1973, few institutions had even begun to budget for the time new evaluation techniques will require. Nor are enough competent individuals available to staff the evaluation offices these new services require. Further, there is doubt that the science of evaluation or

⁵Ernest W. Kimmel, "Problems of Recognition" in *Explorations in Non-Traditional Study*, ed. by Samuel B. Gould and K. Patricia Cross (San Francisco: Jossey-Bass Inc., 1972), pp. 68-78.

⁶Gould and Cross, eds., *Explorations*.

psychometrics has developed new theory or appropriate technology which can be adapted to these newer needs. In the light of all this, perhaps the best advice to those concerned with vocational and occupational curriculum and instruction is to keep evaluation in mind; watch experimentation closely; don't discard traditional means too rapidly, and assume if one is serious about measurement and evaluation that it will be an expensive, time consuming effort.

CURRICULAR EXPERIMENTATION

General Consideration

A curriculum can be defined as the content and organization of a unit, course or collection of them. Unresolved curricular issues abound, particularly in the liberal arts, general education and preprofessional education as well as for occupational curricula. The issues reflect definite polarity as well as universality.

1. General vs. specific: Should the program prepare for immediate job entry or provide a broader base upon which subsequent career growth presumably will take place?
2. Egalitarian vs. elite: How selective should the program be?
3. Theoretical vs. applied: Should the program stress underlying theory on the assumption that application will come on the job, or stress field work and practice relating theory to application?
4. Verbal, mathematical and rational vs. experimental, affective and manual: Should the program stress nomenclature, verbal or mathematic reasoning, or should it emphasize learning through inference from experiences, relationship with people, or from trial and error practice of skills?
5. Immediate and vocational vs. educational and life orientations: Should the program stress vocational skills alone, or stress such things as character, habits and traits of citizenship and life style?
6. Elective vs. prescriptive: Should courses be mostly prescribed or should students be allowed to prepare their own programs and courses of study?

Similarly, the range of potential innovation is limited and is comparable in both occupational and general education. As of 1973 these seem to be the principal categories:

1. Efforts to individualize instruction through such devices as structured but paced instruction or through individual sensing and working on a problem, often in a group situation.
2. Efforts to bring a greater sense of reality to an educational program through field work, clinical experience or cooperative work study.
3. Efforts to interrelate a number of subjects, disciplines, professions or skills to prepare people to solve complex programs or to undertake complex activities.

4. Efforts to exploit the capabilities of the newer media such as computers, video tape, tape recorders, multi-media classroom and the like for educational purposes. This category overlaps others, but in much experimentation solving technological problems dominates the undertaking.
5. Efforts to develop new modes of evaluation which more faithfully reflect actual competencies.
6. Efforts to modify temporal requirements, such as shortening time required, dividing time into short modules or deliberately contriving for discontinuities in an educational program.
7. Efforts to modify groupings, such as cluster colleges, small group intensive interaction or varied size groups.
8. Efforts to make more efficient and effective the techniques of counseling, guidance or advising. For example, there is considerable experimentation with non-professional faculty as counselors, with students as advisors, and with using technology for guidance purposes.
9. Efforts to tailor programs more closely to student needs, demands or expectations through greater freedom of election and more use of student opinion.

Illustrative Innovations

Many changes reported in occupational programs at two- and four-year colleges merely open up a new field, change structure or enrich an existing program through field work.

Much more indicative of curricular innovation are a number of experiments illustrating the various categories listed above. At the University of Massachusetts an effort was made to improve the quality of practice teaching. In essence, an attempt was made to insure a better mix between a practice teacher and the mentor teacher. The reasoning ran that mentor teachers had traits and styles which could be observed and recorded that could help or hinder depending on idiosyncrasies of the practice teacher. Forty mentor teachers were video-taped while teaching and their performance judged by university faculty. Forty practice teachers were also video-taped in their first teaching experience and rated. Then, through use of the computer, practice teachers were reassigned to mentors whose traits and styles were congruent with their own. This visual assessment of traits was reinforced through the use of personality scales such as the Minnesota Teacher Traits Inventory and the Rokeach Dogmatism Scale. While this experiment demonstrated the psychological feasibility of such an approach, it also revealed that for logistical reasons the system could not be made operational in teacher preparing institutions.

Much more realistic and exportable to other institutions is the problem-centered spiral curriculum in the School of Engineering at West Virginia University. This is an attempt to create a common freshman year course in engineering to be interdisciplinary and taken by all students regardless of concentration. During the first semester, freshmen spend six weeks following a programmed design problem. This is followed by more specific and orthodox

study of relevant engineering principles and a shorter programmed design problem. The second semester features several other design problems with exercises tailored to the several fields of engineering elected by students. Thus the first semester is common for all students and the second somewhat more specialized. To facilitate the sharing of experiences by students in different specialties, the School of Engineering built a special common room with four adjacent rooms. This arrangement allows group work on the common design problem and group or individual work on the more specialized problems. Since the materials were produced by faculty members from the various engineering specialties who needed some orientation to multi-disciplinary work, this was provided through a two-week workshop conducted in the fall before school opened. By spring 1971 the course had been conducted for a full year by 16 faculty members representing all departments in the school. Faculty and student reaction to the program seemed generally favorable, although faculty realized that creating programmed materials and faculty orientation were extremely time-consuming. If the approach were institutionalized, faculty would need freedom from orthodox classroom activities for more managerial activities.

At Stanford University the School of Engineering undertook a different kind of curricular revision also focusing on design. They attempted to create a course entitled "Man and His Environment" open to all undergraduate students at Stanford. The course focused on design of solutions to various environmental problems, such as a new freeway system in the foothills and its relationship to water sources for San Francisco. The new course represents two innovative thrusts: (1) to use occupational education for liberal education purposes; (2) to help reorient the civil engineering program at Stanford to a design emphasis.

Seeking greater reality for elementary school teacher trainees, Carnegie-Mellon University, Chatham College and the Pittsburgh school system cooperated to develop a laboratory school based on new theories concerning open classrooms. First elementary school departments of the two institutions fashioned an eclectic theory composed of elements developed in the United States and England. This theory was given physical expression in a new classroom equipped with a variety of equipment which children could use at their will. It was designed to achieve educational goals of reading, science, social science and the like. Half the pupils for the new classroom were minority group members brought by bus, and half were children from the Carnegie-Mellon community. Teachers from Pittsburgh schools, practice teachers and teachers from the two institutions provided the professional service for the experiment. Several Pittsburgh schools created similar open classrooms as a means of expanding the concept and training still more practice teachers. While the pedagogical materials and concepts represent a definite contribution to education theory, the important element is the close relationship between two teacher-preparing institutions and a big city school system in solving educational problems of minority group members and preparing teachers to continue that work.

Another experiment in teacher education is the attempt at Kansas State Teachers College, Emporia, to weave elements of psychoanalytic theory into the training of secondary teachers. A course in secondary education stressing psychological principles, methods and the like was team-developed so that the psychoanalytical implications of the various aspects of teaching and learning would be stressed. The experiment worked reasonably well at Emporia, partly because of the high concentration of psychoanalysts in nearby Topeka. However, the general approach seems too foreign to most teacher preparation institutions.

In another field, that of business, a different kind of innovation has been attempted at Knox College and has spread to at least 200 other institutions. This consists of a computer program and a three-volume workbook series covering the first year of principles of accounting. The workbooks interest students in the use of the computer and then lead them through a series of increasingly complex accounting problems with the computer doing the computations and informing students of error in reasoning. The workbooks are so designed that students must do some computational work themselves because there are still some operations which are better accomplished by hand. The workbooks are general enough to use with any of a number of standardized tests, and the entire course can be exported to almost any institution with moderate computer capacity. Accounting, with emphasis on specific problem solving, seems admirably suited to computer use. Other kinds of courses clearly are not.

Michigan State University is providing business students hands-on experience in establishing small businesses in ghettos. The program consists of a three-term (or one year) sequence for seniors which combines classroom work with internships in small businesses in the Lansing area. Students meet with an assigned business client once each week, gather data, formulate judgments and then discuss tentative conclusions with the business faculty at Michigan State. The constant interaction between theory and practice is the essence of the program.

Illinois Institute of Technology has a problem-oriented engineering program supported by a National Science Foundation grant called "Education and Experience in Engineering" ("E-Cube") aimed at educating

engineers to a high level of interdisciplinary conception so that they will be able to solve problems within technological, socioeconomic and legal constraints.⁷

Following a two-week orientation, groups of four to six students define a project from an overall theme set by the faculty. In 1972, the first year of the program, the 29 freshmen selected group projects on "the city and its problems in transportation and pollution control," such as:

⁷Lewis Vaczek, "IT's New Approach to Engineering Education," *Change*, V (June, 1973), pp. 27-30.

- a system to collect and recycle plastics
- modification of a Chicago hospital's incinerator to meet city emission regulations
- a short-distance transportation system at O'Hare airport
- an ignition-connected alcohol detection system to prevent drunks from driving.

The groups write a preliminary proposal, study how and when their goals can be attained and submit the proposal and an individual study and procedure plan for each group member to a review board composed of the program head, one other faculty member expert in the topic and one student. Upon final acceptance by the review board the rewritten proposal serves as a contract between school and students.

To acquire needed skills and information for solving their problem, E-cube students individually learn self-paced modules in mathematics, physics and chemistry. Test results upon completion of modules serve as credits toward a degree. The 19 E-cube faculty members hope eventually to have modules matching most of the regular curriculum, which will aid the equating of credits. Special seminars fill any gaps in the prepared modules.

Faculty advisers supervise students' learning on and off the project. Each group has at least one adviser from technology and one from liberal arts. Both advisers meet with the group at least once a week, and they are available for individual consultation. As a rule E-cube faculty are released from one-third of regular classroom assignments for work on the program. It is their responsibility to see that all the students they work with have a balanced education in engineering and the liberal arts upon graduation.

By 1975 the first group of E-cube students will be seniors and will assist the faculty as advisers to newer E-cube students. This tutorial system will allow reduction of the faculty-student ratio and thus will make E-cube less costly per student than traditional engineering programs. Both older and newer students are expected to gain from the student adviser system.

E-Cube does have some problems. Only 10 or 12 percent of engineering students are suited for the combination of independent study and team problem-solving. While the program is intended to integrate the social sciences and humanities into the engineer's education, some people question whether studies of philosophy and literature, for example, will arise naturally from engineering projects. Bookkeeping problems arise when registrars, looking for credit hours and grades, find instead lists of E-cube experiences.

Two other engineering experiments reveal additional elements of reform and change. New York Institute of Technology developed a Bachelor of Technology program with a major emphasis in electrical technology. The program assumed the bachelor's degree program could be completed within two years because credit could be earned by examination and by presenting relevant work experience. Independent study is the predominant mode, but there are provisions for yearly visits to the campus for

week-long seminars and for telephone or face-to-face consultation with faculty members. The study guides were based on stated educational objectives and were developed by faculty members who had been taught how to state educational objectives and how to develop study guides. They were intended to be sufficiently general to be used with any of several texts in the field.

At Carnegie-Mellon a different sort of experiment made use of a technique growing in frequency of use -- a computer-based game, simulating weather and atmospheric conditions that could produce serious levels of air pollution. Carnegie-Mellon University created in 1968 the School of Urban and Public Affairs, which resolved to use a variety of educational techniques to develop advanced-degree urban specialists. Thus, game simulation was a logical innovative attempt.

A computer program was created which had various information on weather patterns, intensity of pollution and industrial plans. Printed instructional materials were prepared to present hypothetical geographic area, assign different roles to different individuals and indicate the original weather conditions with which game players contend. Then the instructional materials and computer program were packaged to distribute beyond the Carnegie-Mellon University campus. It was envisioned that the game would prove helpful for several different kinds of people:

1. undergraduate students needing some awareness of environmental problems as part of their general education;
2. graduate students training for careers in agencies dealing with urban problems;
3. workers in agencies concerned with the environment who need better focused education for environmental decision making;
4. high school students, and
5. the general public whose understanding of the factors involved in air pollution might produce a climate supportive of more rational decisions about the environment.

A variety of curricular experiments undertaken in journalism, teacher education, business education and nursing are considered in the Appendix.

NEW DEGREE STRUCTURES

The above examples of curricular innovation and reform indicate what is being attempted within formal courses and patterns of courses designed for vocational preparation. However, there are other innovations and reforms being suggested or attempted, having direct relevance for vocational or career curricula. The first of these involves modification of the American degree structure in any of several ways.

The Associate Degree

Spurr argues that the associate degree generally awarded by two-year colleges should be universally required and offered by

both two- and four-year institutions to signal the completion of the first phase of higher education.

By bracketing together all who reach the two-year level with the associate's degree, whether on the completion of an academic or in a technical vocational program, all successful students at this point will share the prestige and recognition and the sense of satisfaction and completion that comes from the possession of a college degree.⁸

This recommendation assumes that the work for the associate degree would be carefully articulated with subsequent work for the bachelor's degree, an articulation made consistent with broad principles recommended for an emerging academic degree structure:

1. A degree structure should be flexible enough in time required for the completion of an academic program to allow for acceleration. This flexibility, of course, presents a danger that some students may unnecessarily stretch out a particular program, and some limitations on time probably are in order.
2. Each academic degree — associate, bachelor's or master's — should mark the successful completion of one stage of academic progress without implication or prejudgment of a student's capacity to embark on subsequent stages. Thus all entering college freshmen would matriculate for the associate degree, and receipt of that degree would in no way determine the individual's subsequent academic or vocational career.
3. Degree structures should be so interrelated that there is maximum opportunity for students to redirect their efforts as their motivations, interests and achievements change. This lends considerable credence to the growing belief that programs ought to deal with families of occupations rather than specific occupations, so that students can change in midstream without losing too much academic equity.
4. The various components of educational experience — for example, general, liberal, theoretical and applied — should not be separated from each other by distinctive time periods. Much curricular thinking in the 1950s and early 1960s seemed to suggest that students should first take general education, then take basic science courses relevant to a vocation, and only after that should take applied courses or field work. Instead of that, students need a continuous mixture of components from entry until exit. Early clinical experience in vocational curricula is a clear manifestation of this principle.⁹

Acceleration

The early 1970s saw experimentation with several different

⁸Stephen H. Spurr, *Academic Degree Structures. Innovative Approaches* (New York: McGraw-Hill Book Company, 1970), p. 45.

⁹*Ibid.*, pp. 26-27

degree patterns. The Carnegie Commission on Higher Education in its policy statement, *Less Time More Options*, argued that there was considerable redundancy between high school and college and that about one year could be eliminated by combining those two levels.¹⁰ As that policy recommendation has been examined and elaborated by institutions, several patterns for reducing time have been suggested. The first is greater use of early entrance, with institutions accepting students at the end of the sophomore or junior year of high school directly into a college program. This idea is not new. It underlays the educational reforms attempted at the University of Chicago during the 1930s by President Robert M. Hutchins. It was also tested in a number of studies sponsored by the Ford Foundation during the 1950s, the results of which were disseminated in a volume entitled *They Went To College Early*. The idea did not take hold, however, and only in the 1970s are the possibilities once more being examined.

A second method to shorten time spent in formal academic work might be called the "academic stretch-out," with students taking heavier than average loads or attending summer sessions. This option has long been available but has been utilized by only limited numbers of students. Variations of this stretch-out were attempts by a few institutions to develop a trimester system in the expectation that many students would accelerate graduation by attending year round. The Raymond Campus of the University of The Pacific offered a degree in three years, but each of those three years began around Labor Day and ended after July 4th.

A third technique involves greater use of advanced placement testing, increased use of such programs as the College Level Examination Program and much greater use of locally prepared examinations as the basis for credit. While nationally the number of students who gain credit through advanced placement testing is small compared to the total collegiate enrollment, in a few institutions such as Harvard College a three-year bachelor's degree could become the mode if certain objections could be overcome.

Another approach assumes that there is enough redundancy in a four-year bachelor's program for the same outcomes to be achieved in three normal academic years. Only a few institutions have opted for this alternative, such as Stephens College in Columbia, Missouri, which simultaneously has offered a bachelor's degree implemented through a curriculum of modules seven weeks long.

Flexible Degree Programs

Another way of gaining degree flexibility, especially for adults with some formal college training, is through the increasing number of adult degree programs offered by residential institutions. These are tailored specifically for adult students who are working but need academic upgrading.

The Metro degree program of St. Louis University is one

¹⁰Carnegie Commission on Higher Education, *Less Time, More Options* (New York: McGraw-Hill Book Company, 1971).

example. While the Metro degree program still relies on grading and the accumulation of 120 credits for graduation, it is decidedly atypical with respect to other matters. Classes, mainly offered during evenings and on weekends are conducted on the University campus, at three extension centers and in schools and business offices if there is sufficient demand. Collegiate transfer credit is accepted regardless of how long ago it was earned. In addition, academic credit is given for relevant knowledge and skills obtained on the job or through private study or community service. Through such devices it is hoped that adults can earn a bachelor's degree without spending ten or twelve years in night school as has been typical.

The expected clientele illustrates the vocational significance of this new degree activity:

Business firms want their employees to learn more about management or industrial relations. Law enforcement authorities are interested in a humanistic, urban-oriented curriculum for police officers. Preschool programs need teachers educated in the principles of early childhood development. Often such businesses or agencies encourage part-time study through tuition remission, released time, or both. Again it's a question of matching their requirements with [the institution's] academic resources.¹¹

The starting program offered bachelor's degrees in business studies, liberal studies, and urban affairs and community services. Those three broad areas allow 15 concentrations from middle management to theology to agency operations. A similar enterprise is being planned by the University of Dayton and seems to be involved in the new Minnesota State College located on multiple sites in Minneapolis and St. Paul.

Even farther removed from orthodoxy are a spate of American attempts to adapt the British concept of the Open University to the educational soil of the United States. One of these is the Regents' External Degree offered by The University of the State of New York. This is a degree awarded by a non-teaching university for knowledge gained elsewhere. Requirements for the degree do not include classroom attendance nor do they in any way specify the manner in which knowledge or skills must be acquired. The program encourages a wide variety of educational activities, both in formal school settings and elsewhere, and seeks to evaluate the educational significance of these activities through an equally wide range of assessment techniques. Fundamental to the Regents' degree, however, are the college proficiency examinations, prepared by about 300 faculty members from New York's public and private higher institutions, which really determine the educational competence of students who enroll.

As the program began to develop in the early 1970s, three principal degree patterns were adopted. The first was the Associate in Arts, which is more general education than vocational education. The second, the Bachelor of Science in Business Administra-

¹¹Jane Priver, "For Adults, Only - The Metro Degree," *St. Louis University Magazine*, XLVI (April 1973), p. 6.

tion, consists of business and general education components. In the business component, candidates must demonstrate basic competence in accounting, finance, management of human resources and operations management by passing specifically designed examinations. The third degree program is the Associate in Applied Science in Nursing which also consists of both nursing and general education components. Competency in the general education component is demonstrated for the most part through standard proficiency examinations. However, in the nursing component candidates must demonstrate competence in the areas of health, commonalities of nursing care, differences in nursing care, occupational strategy, and clinical performance by passing specially designed examinations.

These degree programs are open to all who can qualify, regardless of residency in the State of New York.

Related are experiments with the external degree offered by Rutgers, The University of Maryland, The University of Houston and The California State University, San Diego. These differ substantially from the Regents external degree program in that the sponsoring institutions provide specially prepared educational materials of all varieties which students study on their own. The Regents external degree relies on other agencies to provide educational experience which the program staff simply evaluates and credentials. This same approach is involved in the programs being developed by the Empire State College of the State University of New York. That institution, when in full operation

will operate through a network of regional learning centers located within reasonable commuting distance of New York State residents. Centers are already in operation in Albany, Metropolitan New York and Rochester. . . . By the end of 1973 each center will serve nearly 1,000 students.

The student will normally use the center nearest him and will work with one or more faculty members based there. Routine educational activities — group reading, on-the-job experience, volunteer activities, tutorial sessions, courses — are carried on in the general community around the center. Each location offers an array of resources which students and mentors can call on for learning. Through correspondence or travel, students also will reach beyond the local community to the next town, the next state or overseas.¹²

The same general approach is utilized by the University Without Walls sponsored by the Union of Experimental Colleges and Universities, and the University Without Walls sponsored by the U.S. Department of Housing and Urban Development. The essentials of those two are revealed in a description of the U.S. Department of Housing and Urban Development effort which

involves a highly flexible educational format, encompassing a new educational technology in the sense of a combination of formal instruction through intensive seminars, on-the-job training and

¹²Empire State College, *Bulletin for 1971-72* (Albany, 1971).

work experience; a very liberal and quite flexible academic mix of requirements — credit for life and work experience, an opportunity to challenge the situation through examination and other features, and the ability to take the university literally anywhere, hence without walls, and to use the very best people as faculty wherever they may be physically located, by bringing them as well as the counselors and classes to the students. Unlike most of the university without walls programs now in existence, where the student must come to the university, HUD's concept is that the university is there to serve the student and must come to him. Its service concept provides that the objective of UWW is to provide a first-rate relevant educational experience within the context of service. Thus the university must provide the best in instructional technology, new materials and the most qualified instructional staff (whether or not they work for the university full-time is irrelevant.) Personal contact is essential, provided for through a corps of highly skilled well trained counselors who must also be specialists in their fields; and all must be complemented by smoothly run, technically integrated, managerial system responsive to student needs.¹³

This Housing and Urban Development activity underscores the vocational training potential, for it is largely used by a range of agencies for staff training.

Involved are urban renewal, model cities, housing, planning codes, administrative and other HUD related activities. When feasible, local school systems, police, public health and other affiliated agencies in the jurisdiction have joined the total program using PHS, justice, OE and other available federal funds, plus local supplementation and even student-derived pro rata contributions. Federal agencies have also adopted HUD's University Without Walls technology and programs for internal staff training purposes, and HUD is cooperating with the Bureau of Training of the U.S. Civil Service Commission. We soon expect to add a television teaching series designed to bring instruction to blocks of individuals in a geographic area, coupled with learning packages and challenge systems. We also will provide assistance to elementary and secondary school teachers and school systems in training teachers to incorporate urban-related materials in students' curricula at these levels, new and innovative materials in students' curricula at these levels, new and innovative materials to assist university faculty in revitalizing curricula and courses in HUD-related areas of interest, drawn from materials incorporated in HUD programs.¹⁴

As of 1973, it is too early to gauge the full significance of these flexible degree programs. Certainly there is a great deal of interest in them and some experiments have produced rather persuasive results. However, program evolution in such directions can quickly degenerate into abuse if not outright fraud, as, for example, some recently opened institutions which openly advertise a bachelor's degree in one or two years, or an institution which advertises a

¹³Melvin W. Wachs, "HUD's University Without Walls — Little Publicized University Education," Washington, 1972 (Mimeographed.)

¹⁴*Ibid.*, p. 5.

Ph.D. degree in one five-week summer session, two semesters of thesis work done while on a job, and a two-week terminal session which includes a final oral examination and additional enriching experiences. Despite that danger, however, external or extended degree programs contain elements which could be of value to more orthodox programs. These would include a more flexible attitude toward residency requirements, recognition that some life experiences have definable educational value, and reliance on the self-generating motivation of individual students rather than the extrinsic motivations of grades, classes and coercion which undergraduates frequently suggest is the rule in undergraduate colleges.

PROVISIONS FOR NEW STUDENTS

A major problem facing collegiate vocational and occupational education is how to deal with several categories of new students. Much thinking about collegiate level occupational education has been conditioned by the belief that programs should, to a considerable extent, be theoretical and academic on the ground that such an orientation allows for greater vocational flexibility. Because students who entered them had reasonably high academic aptitude and had achieved reasonably well in academic subjects in high school, traditional college programs seemed quite appropriate. By 1973, however, that orthodox and satisfactory college student was attending college in saturation numbers, i.e., approximately 85 to 90 percent of the cohort group had enrolled. The next great wave of students will be a new breed, and some educators fear that this new breed of student either will not profit or will become socially nihilistic as a result of his encounter with traditional formal post-secondary education.

These new students represent a distinctive group. They score in the lowest third on tests of academic ability. A large proportion of new students come from relatively low socio-economic and disadvantaged minority groups. They are positively attracted to careers and prefer to learn things that are tangible and useful. They tend not to value the academic model of higher education prized by faculty, preferring instead a clearly vocational model which will teach them what they need to know to make a good living. They consistently pick the non-academic activities, interests and competencies from lists presented to them. They prefer watching television programs to reading, working with tools to working with numbers. They feel more competent in using a sewing machine than in reciting long passages from memory. They prefer to learn what others have said rather than to engage in intellectual questioning. Nor do they like intellectual puzzles or complicated manipulation of ideas and abstractions. These new students want to enter the world of work and to be so prepared that they can succeed in whatever occupation they have chosen. Yet, when they approach colleges, whether two- or four-year, they encounter courses and curricula antithetical to their essential nature and needs.

Cross, commenting on this unfortunate phenomenon remarks

that American society needs people to work with people, people to work with things, and people to work with ideas. A desirable educational goal would be to prepare each individual to a reasonable level of excellence in a vocation involving one of those categories, with at least some competence in the other two. She believes that many of the new students show particular strengths and interests in working in the emerging specialties dealing with human problems and those involved in keeping the machinery of the technological age in running condition. She argues that curricula should be specifically designed to prepare people for those kinds of activities.¹⁵ As pedagogical techniques relevant to these three spheres of activity she suggests that

lectures and paper-and-pencil tests may well be effective ways of preparing students to work with ideas — although there is now considerable questioning of this venerable assumption. Group work, shop work and experience in industry and the community may be the best techniques for teaching excellence in the people and things spheres. Such learning experiences should be given full college credit. They are educational in the best meaning of the term, as long as the emphasis is on learning to perform better or to know more or to deepen appreciation and understanding of the sphere of excellence and one's own place in it.¹⁶

Thus the educational ideas in the external degrees and universities without walls resonate sympathetically to Cross' recommendations.

Regardless of other curricular and instructional concerns programs for the new students probably must contain substantial components of remedial education. Although the record is somewhat discouraging (lack of evidence that remedial programs improve academic performance or persistence, lack of evidence that programs have been effective in remedying student deficiencies, and lack of evidence that remedially-oriented institutions such as two-year colleges have really contributed to moving new students into the mainstream of American vocational life) the need for remediation persists. Some successful programs suggest plausible recommendations. Obviously, if an institution wishes to help new students, it should make a clear and unequivocal commitment to do so. Only instructors who volunteer to teach non-traditional students should ever be involved in developing programs, and those programs should usually be separately organized into a division of developmental studies with its own staff and administrative head. All developmental courses, regardless of how foreign they appear to traditional college work should carry credit for graduation or for program certification, and grading policies and practices should for the most part be non-punitive. Instruction should be so managed that individual differences are accommodated and individual students proceed through a program at their own rate. Here many of the recently

¹⁵K. Patricia Cross, *Beyond The Open Door* (San Francisco: Jossey-Bass, Inc., 1971), p. 165.

¹⁶*Ibid.* p. 167.

developed self-paced learning activities are germane. However, individually paced learning is insufficient for students who need a great deal of psychic and intellectual support. Thus counseling is a major demand on an institution's professional people. Students who need remedial work should not be moved too abruptly to a complete program of traditional studies. Rather there should be a gradual phasing into more orthodox activities. Because of all kinds of traditions and myths, many students in need of remedial programs will not seek them out. Hence there should be effective recruitment strategies to identify and enroll the non-traditional students for whom these programs are designed.¹⁷

Illustrating several of the themes on education of new students are some new institutions. In 1970, the LaGuardia Community College was created in the Long Island City section of Queens, an area populated by economically downtrodden white ethnic groups. Prospective students for the institution were the sort who prefer a full-time job to full-time school. Thus the institution embraced cooperative education and required all students to participate.

All would work at full-time outside jobs for three of the eight quarters they attend LaGuardia. For this work they would receive nine credits toward the 67 they needed to graduate and the jobs were expected to pay about \$2.00 an hour.¹⁸

Although early community response to a college which would allow young people to earn money while going to school was enthusiastic, officials of the institution felt still further motivation was in order.

After its first class had been selected, LaGuardia staff members went to the sending high schools and spoke individually to about 80 percent of the incoming freshmen. They invited students to the college for a day ... and ... each student met with a counselor or faculty member and designed his or her own program. Believing as the faculty did in the values of peer education, potential student leaders were identified and provided a timing program to prepare them to mount the two-day orientation period scheduled for all students. Unlike all other units within CUNY, LaGuardia runs on a 12-month basis. Students get one week off at the end of each quarter, but there is no summer vacation. First year students take courses for two quarters and then have jobs for one of the next two quarters. In the second year they alternate jobs and course work, each taking two of the four quarters so that half the class is in school and half out on jobs at all times. . . . LaGuardia requires also that each division starts the quarter with an Intensive - a concentrated examination of a subject area. While these are being held, single courses meet all day for five days.¹⁹

¹⁷These recommendations are drawn from John E. Roueche and R. Wade Kirk, *Catching Up: Remedial Education* (San Francisco: Jossey-Bass, Inc., 1973), pp. 82-94.

¹⁸Peter H. Bincen, "LaGuardia Community College: Education in the World of Work," *Change* V (February 1973), p. 37.

¹⁹*Ibid.*

Considerably different is DQU, located on former Army Communications Base, six miles west of Davis, California. Its student clientele is split almost evenly between American Indians and Chicanos. Students can stay for two years and get an Associate of Arts degree or for two weeks and get a certificate. They may obtain credit for the usual array of college courses or for such things as participating in tribal dances or planting corn. The institution evolved out of a program in native American studies begun at the University of California, Davis, but left that institution when it appeared that the university really was not going to be responsive to the needs of native American and Chicano students. If things go right, by 1977 DQU will consist of four colleges: (1) emphasizing the trades, agriculture, forestry and small business administration; (2) dealing with special Indian concerns such as water rights; (3) focusing on Chicano issues; (4) training paramedics and nurses to provide health services to Indians and Chicanos. The first of the four colleges also offers an array of the usual community college courses taught with a native American or Chicano orientation. For example, in a natural science course tribal mind-altering techniques are examined. Lecturing is rarely used and grading is exclusively on a Pass or Superior basis. No failing grades are ever given. The college operates through a contract system of education according to which students stipulate what they wish to learn and at what rate. The university has won strong community support and involvement and it gives academic credit for working in community development. DQU is attempting to build a genuine community. Everyone works at the university. Students sit on all committees, they perform much of the menial labor associated with keeping the institution going, and they help with the sheep, with the bakery and with the kiln that can make adobe for other buildings as needed.²⁰

INDEPENDENT STUDY

Seemingly an essential ingredient in many curricular innovations is some variant of independent study. Self-paced instruction is found in many engineering or business programs. The amount of structure varies. Especially in some of the health fields like nursing, the new emphasis on community participation implies a great deal of independent effort as students decide on a community-related problem, work at it and eventually report back to their instructor what they have achieved.

Most new degree structures imply some elements of independent study. Again, there is a wide range of practice with respect to structure. Some students are assigned tasks on campus and are expected to work on those sequentially at home, reporting back periodically. Other programs, such as the Regents External Degree, assume no contact with a teaching institution but rather that students will fashion previous experiences and contrive new

²⁰Peter A. Janssen, "DQU: Their Own Place in the Sun," *Change*, V (February, 1973), pp. 46-48.

experiences so that the result is a measurable educational achievement. The essence of most of these newer degree structures is reflected in a characterization of the University Without Walls program of the Union Experimenting Colleges and Universities.

For the most part of the program is individualized, beginning with a process of orientation, followed by the identification by the student and his teacher adviser of a plan of action using different kinds of experience chosen from an inventory of learning resources built up at each institution. The student proceeds at a pace determined by his ability and by the availability of the resources to be used, keeping an accumulative record of learning plans and accomplishments. When he feels ready to present himself for a degree, the final evaluation of his work is made by a review committee of faculty members, students and others with whom the student has been working.²¹

This being so, greater attention should be given to the real as compared with the claimed potential of independent study as preparation for occupations or careers. Dressel and Thompson define independent study as "the student's self-directed pursuit of academic competence in as autonomous a manner as he is able to exercise at any particular time."²² The term and that definition, however, cover a wide range of practices.

Perhaps the most common practice is for independent work to be carried on either parallel to or as a designated segment of a regular course. A student wishing to examine a specific matter which the instructor cannot accommodate in his course organization is allowed to pursue it on his own, or else the instructor conducts face-to-face instruction for one portion of the course, allowing students to work on their own for latter portions. The two-, three- or four-week reading period at the end of the semester is a frequently encountered example of this approach.

Increasingly, however, departments, schools and institutions are making provision for specially designated independent study courses having their own numbers and leaving to individual instructors and students how the independent study will be undertaken. Frequently students need systematic preparation in a subject covered by the formal curricula. The independent study number is a device by which a student can organize materials systematically with the advice of an instructor who, while he may not be specifically expert, has enough general awareness to guide the student's activities. For example, few professors of school administration are yet competent to offer full courses on collective bargaining. Yet students studying to become school administrators need specialized training on that subject. The independent study number allows an individual working under very broad guidance to acquire the needed expertise.

More structured but similar are those collegiate programs

²¹Cyril O. Houle, *The External Degree* (San Francisco: Jossey-Bass, Inc., 1973), p. 113.

²²Paul L. Dressel and Mary M. Thompson, *Independent Study* (San Francisco: Jossey-Bass, Inc., 1973), p. 1.

offering a special independent study program for all students or for certain categories of students. These can range from the new freshman year at Antioch College which allowed students to utilize the resources of Antioch College for whatever way they chose to work out their freshman year curriculum, to the Honors Program at Swarthmore College which allowed selected students to devote the junior and senior year to independent study in a field selected by themselves.

Or there can be special groupings of students with the expectation that each student will finally select a problem on which he can work, assisted by other students in the group or by faculty members easily available to them. For example, at MIT the unified science study program consists of staff who offer *ad hoc* problems-oriented seminars and who assist students in selecting an independent research project and then monitor student progress to completion of their individual undertakings. A variant of that MIT project was attempted in a Massachusetts Community College in fall 1972. Entering freshman students were apprised of the availability of a program and those interested were invited to apply. Those students selected indicated a general problem area in which they were interested and were counseled to explore that interest and define a problem upon which they could work for the rest of the academic year. Since those students were not highly motivated academically, they experienced a great deal of floundering as they were told to go off and work on their own. However, faculty members made themselves available for counseling with individuals and with groups, and eventually the students did begin to work on specific projects. At mid-semester and at the end of the semester, students were required to make progress reports before a panel of faculty members. These reports were oral and varied in format. Throughout the semester, the faculty contrived a number of group meetings which took on the attributes of an *ad hoc* seminar. However, most of the faculty time was spent in counseling students, both with respect to how they could work on their specific projects and with respect to personal problems.

A second broad category of independent study activity involved a great deal more structure, such as the various individual-paced study arrangements. In these programs instructors select objectives, collect and display materials and insist that students work through them in a systematic way. The individualization allows students to proceed at their own speed. Such schemes are found on campus, with provisions for a great deal of instructional feedback, or off campus, with feedback either vicariously through instructor-grading of papers or sporadically through an occasional consultative visit with the professor.

An example of the first sort is the University of Wisconsin Teaching Information Processing System, a course in principles of economics. It consists of a once-a-week lecture, discussion sections and a computerized feedback system which relates a variety of background factors for each student (major, SAT scores, amount of mathematics previously taken, and so forth). Student performance is evaluated in bi-weekly quizzes and mid-term examina-

tions. Instructors determine what special learnings each student should undertake as a result of test performance. Thus an individualized computer print-out made available within two or three hours after test completion may tell one student there is no need to do the next regular assignment but that he should attend the lecture of a visiting professor on campus that week, while another student might be informed that he should do the next exercise, master several collateral readings and make an appointment with the teaching assistant responsible for his section on a specific day. The essence of this approach is the cumulative relating of factors judged relevant to successful performance in a course on economics. The individualized assignments made on the basis of those data provide students with almost immediate feedback in clearly understandable fashion so that they can quickly rectify deficiencies.

The third major category of independent study is really not parallel to the others. It uses an interim period — a month in the middle of the academic year, a full quarter or semester or even a full year — when students leave the campus and work more or less on their own on some major project of significance to them and presumably of educational value. The range of possibilities is limited only by the range of imagination. Such independent work can involve working on a job, participating in a cooperative study program, watching plays in New York City, seeking to infiltrate a sub-culture different from one's own or touring Europe.

A fourth major approach to independent study is the use of examinations to assign academic credit for competencies developed by any means. The purest expression of this approach was the comprehensive examination system at the College of the University of Chicago during the 1930s and '40s. A bachelor's degree was awarded upon successfully passing seventeen comprehensive examinations prepared by an external agency called the Office of the University Examiner. Students could prepare for those examinations on their own, they could have already been prepared before matriculation, or they could attend courses. More recent exemplification of this approach is contained in the rationale for the College Level Examination Program of the College Entrance Examination Board. A substantial battery of tests has been prepared and made available to institutions. Presumably students can prepare themselves in any way and when they feel ready can request that they be tested. Performance is compared to norms established by people who had formal instruction in the subject.

In the early 1970s, independent study had become an enormously popular concept for many different kinds of educational purposes. New institutions were created and organized almost exclusively around student independent work. Independent study was seen as a means of facilitating credentialing of people for many different kinds of jobs. Independent study was judged as one of the essentials in programs of non-traditional education. Yet closer examination indicates that independent study is far from a panacea. There is considerable faculty reluctance to grant academic credit for work taken outside of orthodox classrooms. There is considerable difficulty in deciding which independent experien-

ces warrant academic credit and which should be viewed primarily as just life experiences. Students thrown into an independent study situation experience deep feelings of frustration and come to believe they are floundering. Where independent study is offered in high-cost institutions, some students feel short-changed, as reflected in a student remark, "Why should I pay \$3,500 for a library card?" Students working independently away from the pressures of peers feel isolated and find maintaining motivation more and more difficult as time wears on. Many of the carefully structured independent study programs appear effective primarily in vocabulary building with little real demonstrable change in fundamental behavior patterns.

Nonetheless, there seem to be some values from independent study which commend it for consideration in some programs. For independent study to be effective, however, several conditions must be met.

1. Most important, there should be a thorough institutional commitment to independent study so that facilitating policies can be assured.
2. Within that commitment there must be some definite structure of a formal examining procedure, a formal sequence of experiences, or of the processes by which independent study is undertaken. An examination of a number of the more unstructured and amorphous systems of providing independent study leaves the impression that while they may be enjoyable experiences they don't produce measurable educational gains.
3. If independent study is to persist, there must be a distinctive payoff both for students who take work by independent study and for faculty who offer work so atypical from their normal way of doing things. For students to pursue independent study systematically over a period of time, there clearly must be academic credit and very likely a more desirable kind of academic credit than is gained through regular courses. For students pursuing degree programs via independent study, the payoff may be in the form of a shorter or less costly route to the degree. Faculty members in traditional institutions probably will continue to offer independent study only if that activity is counted as a definite part of their workload or if they receive extra pay.
4. Independent study, like virtually every other kind of educational effort, requires an adequate expenditure of funds if it is to be effective. Institutions which assume that independent study is an inexpensive way for coping with student needs can be assured that the resultant programs will not be particularly effective. If independent study is not the programmed sort, considerable resources must be deployed for the preparation of programs. If the system requires examinations, substantial money must be spent to produce suitably valid and reliable tests. If the freer sort of independent study is offered, funds must be expended so that faculty

members can be in the managerial or monitoring role rather than in the traditional face-to-face role.

This point may be illustrated with an analogy. In the 1950s there was considerable concern as to whether colleges and universities affected student values. Generally, as Philip Jacob demonstrated, college did not affect student values.²³ But Edward D. Eddy suggested that institutions could affect values of students if they were willing to expend the same sorts of financial resources for those purposes which they were spending to produce measurable cognitive gains. While there is much serendipity in the educational process, educational gains are really not free.²⁴

SELECTING VOCATIONAL PROGRAMS

Discussions thus far have focused largely on ways of organizing and conducting educational experiences to produce vocational or occupational competency, but the selection of vocations for which educational institutions prepare people is also of enormous curricular significance. In the 1970s, educational institutions are faced with two major tasks in this regard. First, many institutions must find vocational and occupational programs to replace several of the large programs, such as the preparation of teachers, which have experienced (and very likely will continue to experience) declining demand. Second, as they ponder what those replacement programs might be, they must accurately foresee the emerging or the even yet unknown vocations for which they should prepare students. Failure to refocus institutions' efforts to areas of worker shortage will result in enrollment declines, faculty reduction and possible closing of colleges.

The vocational fields into which collegiate institutions might move are indicated by several kinds of evidence. College graduates of the Class of 1980 are likely to see an oversupply in such fields as school teaching, mathematics and pharmacy. However, some occupational fields will face significant shortages of workers: chemistry, counseling, dietetics, dentistry, physics, engineering, geology, optometry. A few occupations will by 1980 face a steady state of supply-demand balance — architecture and law are illustrative.

Operating within such projections, the private liberal arts colleges and state colleges and universities have begun a search for specific viable programs. Illustrative is the planning undertaken by the Minnesota State College System which sees future need in four broad areas: health care, human services, business systems and environmental controls. Curricula within those fields are expected to utilize several new or reinterpreted techniques. Programs should emphasize developing the abilities of individuals to work with people of different backgrounds, social settings, cultural attachments, political interests and intellectual viewpoints. Collegiate

²³Philip E. Jacob, *Changing Values in College, An Exploratory Study of the Impact of College Teaching* (New York, Harper and Brothers, 1957).

²⁴Edward D. Eddy, Jr., *The College Influence on Student Character* (Washington, D.C.: American Council on Education, 1959).

programs are expected to be closely articulated with both lower educational activity and subsequent work experience. Thus individuals can integrate skills acquired in vocational schools, junior colleges or on-the-job experiences with further specialized and general education. These programs should emphasize the development of problem-solving skills rather than a narrow expertise. They increasingly should be interdisciplinary rather than disciplinary and should be constructed to develop capacity for continuing learning, so necessary because of rapid job skill obsolescence. These newer vocational programs in the bachelor's degree-granting institutions will be organized around three years of formal academic work and one year of on-the-job training in hospitals, governmental departments or social agencies.

A similar view of the occupational future is suggested by some early efforts of the National Center for Educational Research and Development. It has sponsored a major project dealing with education in agriculture on the theory that the agricultural industry has been so dynamic that present educational systems may be inadequate to meet the industry's needs. An articulated system of education and agriculture is envisioned, involving high schools, community colleges, state colleges and Land-Grant universities.

The Center has sponsored a project preparing complete instructional systems for such emerging occupations as nuclear medical technology, electrical mechanical technology, laser and electrical optical technology and biomedical equipment technology. The project attempts to produce core units of instructional systems applicable to all four fields.

Another undertaking at the University of California, Los Angeles, is to design, develop and field test instructional systems for more than 30 specific jobs in the allied health fields, again seeking relevant educational tasks for high schools, junior colleges, colleges and universities, and in-service training programs.

Law enforcement appears to be another growth field as do several sub-specialties in business. While generally teaching faces an oversupply, certain teaching specialties can anticipate steady growth. There is apparent need for vocational and technical education teachers as well as people qualified for the sensitive and significant tasks of vocational and careers counseling.²⁵

Guidelines for institutions searching for new vocational or occupational programs are clearly implied by recommendations of the Carnegie Commission on Higher Education.²⁶

1. Since the demand for teachers appears to be shrinking, it is quite possible that a number of institutions should terminate their teacher preparation activities, allowing a more limited number of institutions to offer richer programs of higher

²⁵This material is largely drawn from Karen D. Friedman, ed., *Today's Education for Tomorrow's Jobs* (Washington: American State Colleges and Universities, 1971).

²⁶Carnegie Commission on Higher Education, *College Graduates and Jobs: Adjusting to a New Labor Market Situation* (New York: McGraw Hill Book Company, 1973).

quality. Those remaining programs should emphasize specialized training to prepare teachers for service in ghetto schools, in programs for mentally retarded or physically handicapped children, in early child development programs and day care centers and in vocational education programs. These will be especially important if states implement the widely made recommendation that age of school entrance be lowered to four years.

2. Clearly nursing and the allied health professions will need many additional workers, and both bachelor's degree and two-year institutions can render important service by developing such programs. These include the training of nurses, allied health workers, physicians, dentists, and persons preparing themselves for administrative, educational and research careers in the health fields. These programs should be carefully linked to other vocational programs so that graduates will be prepared to work with other kinds of personnel as a team. In addition to pre-service programs there is a continuing need for in-service and continuing education in the health fields.
3. Both in the health fields and in other professional vocational areas there is an expanding need for paraprofessional workers of various sorts, many of whom can profit from less than an orthodox terminal degree. Such paraprofessional workers also can and should be prepared through in-service as well as through continuing education programs. Especially important is the need for curricula which will illustrate and develop competency for people to articulate professional and paraprofessional programs.
4. In the past, articulation between preprofessional and professional study has been far too casual. An imperative for the future is more carefully planned integration of preprofessional and professional education. From better articulation will come carefully planned programs which will also allow flexible career outlets.
5. All programs of vocational, professional or occupational education should in some way seek to incorporate field or operational experience in the student's training. However, this is no nine-day wonder. Successful clinical training requires careful planning, evaluation, and adaptation to changing needs.
6. Increasingly important in careers education are institutional policies which encourage students to stop out between high school and college, or after several years of undergraduate education, or between undergraduate and graduate education. These stop-out periods can allow students to gain adequate work experience and to crystallize their own career resolve.
7. Many professional and vocational schools and departments should cooperate in the development of joint degree programs in response to emerging societal problems and in response to the advancement of knowledge and technological change.

8. Colleges and universities should take immediate steps to strengthen occupational counseling programs available to their students. College placement services should also be strengthened. Professional schools should maintain their own placement programs for those receiving master's, first professional and doctor's degrees, while arts and science departments should have their own placement programs for students at the doctoral level. If this recommendation is to take place, radically improved quality and flow of occupational information is essential.

Chapter IV

Criteria, Guidelines and Principles

The foregoing resume of prevailing practice and illustrations of attempted reform have highlighted several significant issues and have implied a number of principles which could guide the thinking of those concerned with vocational or occupational educational programs in collegiate-level institutions. Before elaborating on those principles, resolution of several critical issues must be attempted.

CRITICAL ISSUES

Occupational Education in Colleges?

First is simply the question of whether two- and four-year teaching institutions should offer major vocational or occupational programs. The answer could be obviously "yes" because no two- or four-year teaching institution fails to offer at least some vocationally-oriented work. Yet a considerable pool of faculty opinion looks with disfavor upon such programs and in some Utopian setting would like to seek collegiate-level institutions concerned exclusively with liberalizing studies. The existence of such opinion, strongly held, does complicate decisions concerning the offering and content of programs. When such faculty members reluctantly admit that vocational programs must be offered to attract students, among other reasons, then, they argue the courses should be as theoretical as possible and should be limited to a few vocations considered close to the nature of the arts and sciences.

Despite such contrary belief, both two- and four-year collegiate level institutions should accept as essential the offering of a reasonably rich array of programs leading directly and explicitly to vocational preparation. Such activity is clearly in the tradition of American collegiate institutions. More importantly, collegiate institutions should offer vocational programs because of the powerful motivational effect studying for a vocation has on an individual's other studies and on his struggle for identity. In the United States an individual's vocation or calling is a major component of his sense of identity or self-essentiality. The work ethic is still a powerful strand in the American experience. The

developing person unable to envisage his life work is moved toward anomie.

Beyond doubt the psychological needs of individuals are the strongest justification for vocational programs, but colleges also provide specific preparation for a number of jobs — nursing, teaching, engineering and accounting come quickly to mind. Should collegiate level institutions fail to prepare such people, other social institutions would be created which could prepare practitioners. Indeed, as the characteristics of some of the proprietary and non-traditional education activities suggest, the failure of mainstream educational institutions to develop needed programs is the charter for peripheral modes to develop.

Appropriate Programs

Once it is established that collegiate-level institutions should create vocational and occupational programs, the difficult operational problem arises as to what programs would be appropriate. Examination of college catalogs reveals that many programs result from fads, pressure groups, the windfall availability of funds, idiosyncratic desires of individual professors or administrators, or capricious hunches that certain programs might have a desired effect on institutional image, enrollment or finances. Other rational criteria, discussed below, could be applied to determine what programs should be developed, expanded or eliminated, and when.

No institution, regardless of its wealth, can offer all plausible vocational, professional or pre-professional curricula. Even large institutions must be selective; some should not offer such things as medical, dental or legal education. In reality there is no ideal comprehensive liberal arts college, community junior college, state university or research university. Each institution has finite resources and should offer only a limited number of programs. Within this criterion are other principles which can help narrow the choice of programs.

Only those programs should be developed for which a competent faculty is available or can be recruited. While this may seem obvious, it is sometimes overlooked. For example, at a liberal arts college a social science division consisting of several historians, two sociologists, one economist of limited preparation, several descriptive political scientists and a few experimental psychologists, conclude that a bachelor's degree in law enforcement would be salable. The group develops a prospectus assuming that much of what they teach is relevant for such a career if augmented by part-time faculty recruited from a nearby law school and from local law enforcement agencies. For some vocations state licensing laws prevent such a caricature, but for many emerging fields with no credentialing limitation, articulate individuals can argue a plausible case for a popular new vocational program.

Specifically, an institution should not offer a vocational program unless it has teachers with directly relevant preparation and understanding in the appropriate arts or sciences. Possession

of a Ph.D. degree in sociology thus would be no guarantee that a professor was qualified to teach in a program of urban studies, nor would minority group membership, nor an urban address. Additionally, members of the faculty should have recent relevant vocational experience in the field. Regional and specialized accrediting bodies may have to become more rigorous as they examine credentials of vocational teachers.

An institution should only offer vocational programs in which graduates gain a reasonable return on their financial investment. Privately supported liberal arts colleges, in particular, have so increased tuition since 1950, as to be available only to children of comfortable financial circumstances. Counting foregone income as an essential part of the cost of attending such institutions, the price in the early 1970s of four years' education is approximately \$40,000. Many vocations for which some specialized training is needed do not typically pay enough to justify that large an investment. For example, programs in retailing, or bachelor's degree programs in medical technology or social work may be financially inexpedient for a high-cost private institution to offer.

Relatedly, institutions should not offer vocational programs for which there is little market for graduates. There is in the United States a great deal of interest in photography, yet vocational opportunities for professional photographers are decidedly limited. An institution considering a vocational curriculum in photography should proceed cautiously. However, a program in photography could conceivably be justified on non-vocational grounds. In one respect, students themselves may enforce this criteria by refusing to enroll in curricula for which there is a limited market. During the 1970s, for example, students have refrained from enrolling in teacher preparation programs and have not applied to institutions noted for teacher preparation. To conform to this criterion, institutions should engage in more sophisticated market research and should try (while recognizing limitations) to anticipate regional and national manpower needs.

In this same financial vein, institutions should not offer vocational programs likely to become a financial drain on institutional resources. An institution might properly reject entering a field that requires expensive equipment and scarce professorial expertise but produces relatively few graduates. Strictly applied this would mean that some universities could not maintain their medical school. Regardless of cost, however, society does need some highly trained specialists produced by expensive but limited programs. Nevertheless, all too frequently vocational programs have been inaugurated without due consideration of this criterion. For example, in earlier times many liberal arts colleges developed programs in home economics which required expensive capital goods and relatively high cost professors. Many of these programs never became large enough to amortize those costs comparably to such vocational programs as business or teacher preparation.

Collegiate institutions should only offer occupational programs which the institution has the location, posture and expertise to support. It seems rather ridiculous for a rural liberal arts college to

try to prepare workers for urban agencies or communications industries; those activities probably transcend available educational resources. It also seems inappropriate for a mid-American liberal arts college to develop a major concentration in Latin American business practices, especially when large, publicly-supported institutions closer to main transportation and communication arteries between the United States and Latin America already have significant programs.

Relatedly, two- and four year colleges should enter only those vocational fields for which a collegiate-level institution can best offer the needed vocational preparation. American colleges and universities are important institutions which do some things extremely well -- for example, the preparation of lawyers, accountants or physicians. But for many activities, ranging from banking to retailing to military competence, employers themselves are better able to develop vocational skills. This criterion goes directly to a major problem faced by the comprehensive junior college. There is some sentiment that this institution should become a vocational education broker, putting together programs in any field for which there is demand. But is that college the most appropriate place to prepare people for service?

No institution should create an occupational or vocational program without adequate planning and without the necessary resources of library holdings, equipment and personnel. While collegiate institutions are enormously slow-moving bureaucracies with high inertia, they tend to enter vocational areas prematurely, particularly if there is external financial support. Soundly based and potentially effective programs require sophisticated knowledge of the work field, understanding of market conditions and awareness of likely lines of development. Unfortunately, institutions have rarely budgeted funds for planning, possibly because planning may determine that an anticipated program is inappropriate. No degree program should be initiated unless the institution can allow the faculty the equivalent of a full summer to plan the program in detail. Nor should programs be continued unless the institution will provide comparable periods for updating and upgrading of the curriculum.

While these are conservative criteria they would, if applied, reduce the number of vocational curricula offered in most collegiate-level institutions. However, they could result in more effective curricula capable of producing better prepared individuals and more economically viable institutions. There is evidence that institutions which encountered serious financial difficulties in the early 1970s were those which precipitously created many new programs, frequently with externally supplied temporary funding in the expectation that more solid funding could be obtained later. Relatedly, during the last years of many defunct colleges there was a frenzy of activity as people sought to create many new programs to attract students. Similarly, in the 1970s both public and private institutions seek to create off- and on-campus programs to bolster the declining enrollment. While some of the programs in education, engineering, business and the like could, of course, be warranted by the preceding criteria, one

suspects that the loss of others would produce no substantive hardship.

Institutions should create vocational programs appropriate for the time constraints of the particular college. Thus two-year institutions should deny themselves programs which normally require longer, and four-year institutions should not claim to offer preparation for vocations which require additional education for job entry. It is appropriate for bachelor's degree-granting institutions to offer courses — or even degrees — in psychology, anthropology or physics, but not under the guise of preparing for vocations in those fields.

Decisions on vocational programs should be made by boards of trustees with informed advice from faculty, administration and outside bodies.

Boards of Trustees have, among other functions, the obligation to interpret the broader society to the institution. Fulfillment of that responsibility calls for cautious examination of whether proposed programs are warranted.

Board decision, however, should be made on the basis of candid advice and information supplied by faculty and administration. Before faculties and administration recommend programs, they should have examined and interpreted needs of the constituencies served, prevailing market conditions and practitioners' judgments of the viability of a vocational program. All too often this basic research is not done and decisions are made on the basis of eloquency of advocacy.

As faculties and administrations collect information they should also be required to examine alternative programs and alternative uses of resources. During the expansionist period of American higher education, budgets tended to increase proportionately each year and new programs were introduced if there were available resources. As American higher education enters a stable state these practices are inappropriate. A faculty should be forced to examine which of several programs or concentrations represents the most effective deployment of available resources. As alternatives are examined, the question should always be raised: Is this proposal consistent with prevailing standards of excellence for program operation and outcomes? It is possible, for example, for an institution to create quickly an external bachelor's degree program in electro-technology which counts on-the-job experience as equivalent to two or three years of formal academic work. This might or might not prove a warrantable posture when examined in the light of prevailing standards of excellence.

Judgment should be made not only by faculties themselves but by outside bodies such as external consultants, accrediting bodies or appropriate local or state agencies. Program development within collegiate institutions has many of the characteristics of sheer advocacy. A professor, a group of professors or an administrative officer can generally develop a plausible rationale for almost any desired program. The enthusiasm of the advocate should, however, be tempered by thoughtful outside judgments. The use of outside panels has proven quite successful in several states in matching the rate of expansion of doctoral programs with the capabilities of the

institution and the needs of the state or region. As a working principle, no faculty should be allowed to create a new vocational program without a thorough review by recognized and respectable external evaluators. This principle is especially appropriate for non-traditional programs. As a side effect, such reviews might help control degree mills, which appear to be increasing in number.

The preceding observations establish a framework for curricular development in occupational fields and a context for the non-vocational parts of collegiate curricula. Previous chapters have pointed to theorems on the curricula of occupational programs. Dissenting views notwithstanding, no curriculum should be established unless it is responsive to these theorems. Consistently developed these theorems could provide the framework and guidance to determine the form and substance of specific programs.

CURRICULUM THEORY

Repeatedly, curricula that appeared to have been constructed capriciously or under pressure from some individual or group have been criticized. It should be possible to develop an underlying theory of curriculum to guide the selection of courses and teaching methods. There have been a number of attempts to develop such a theory, especially for undergraduate liberal arts programs, and to base curriculum on it. At the most rudimentary level is the older doctrine that a degree program should consist of some general education courses, a major and, in a supporting role, a minor. In the mid-19th century Harvard's President Charles Eliot advanced the doctrine that the form and dimensions of career curricula should be determined by each individual student selecting courses according to his own needs from a reasonably rich array. That doctrine was given more contemporary expression in institutions such as Bennington, Sarah Lawrence and Stephens College, which relied on individual student choice under guidance for curricular development. The late James Madison Woods when president of Stephens College, argued rhetorically that Stephens should have two thousand different curricula to serve the two thousand students that enrolled.

More recently, Dressel advanced the theory that a finite number of competencies could be enumerated which should be developed by an educational program operating under definite fiscal and numerical constraints (e.g., power over limits of cost per student credit hour produced and limits on the number of courses a department should offer). McGlothlin in one context and Anderson in another have argued that professional curricula should consist of a base of liberal arts and sciences, certain theoretical courses directly relevant to a vocational field, certain applied courses and certain experiences intended to allow practice and demonstration of skills of application. Mayhew and Ford's four-element typology is discussed in Chapter II. Regardless of whether a faculty embraces any of the above, some internally consistent blueprint should be developed to guide selection of materials and establish a means of gauging appropriate balance.

Curricular Justification

College catalogs and brochures describing specific programs should present the curriculum's rationale, which can enable students and others to judge the adequacy of the program. Prevailing practice is for college catalogs to indicate a vocational area and sometimes identify the kinds of people the program is designed for, then list courses and perhaps typical student schedules, indicating what courses are required and recommended. They rarely say in language prospective students can understand, specifically what the program is intended to accomplish, and why certain courses are recommended. Undergraduate students enter college quite unsophisticated with respect to the needs of the various vocations they are pondering. More detail in the college catalog would help in making them more knowledgeable. Furthermore, asking faculty members to write in understandable prose a justification for inclusions in specific curricula could be important in forcing a more rational basis for curriculum construction. For example, the prospective student in a bachelor's degree program in social work, intended to prepare him for a job immediately upon graduation, is entitled to wonder why he is required to take Introduction to Sociology, Modern Social Problems, Social Statistics, Methods of Social Research, and Contemporary Sociological Theory. These might all be defensible, but that defense ought to be part of the college catalog.

Limited Course Offerings

For any curriculum there should be a reasonable limit placed on the number of courses offered, a number determined in part by the norms operating at the institution as to appropriate faculty loads and student-faculty ratios, and in part by the clearly expressed objectives of the program. The four-professor department of agriculture discussed in Chapter II that offers a score of courses regularly plus others on demand exemplifies the questionable practice common in all fields.

A given faculty member should be allowed to teach not more than four different one-semester courses in one academic year and no more than six different one-semester courses in two academic years. The total number of courses offered should be no greater than the number of faculty members in the department times the acceptable course load per faculty member. If institutional resources do not allow a reasonably rich program in a vocational field through complying with this principle, then the institution should not offer a diploma program in that field.

A related principle is that professors should not be allowed to teach more courses than they are actually qualified to teach. If it is assumed that vocational education does require identifiable expertise on the part of the faculty member, then insisting on qualifications other than interest in a particular course ought to be the rule. This is not to say that professors should be expected to spend their entire lives teaching the same limited number of courses.

As professors change the areas of their interest and expertise, they should be expected to take steps to prepare themselves for new activities. In the case of vocational fields, they should gain actual relevant vocational experience. Close to this ideal was the practice of an associate professor of education in the Carnegie-Mellon University. His original training was to teach in the secondary school. He became interested in teaching early school children and spent a year of study, followed by a year of actually teaching first and second graders, before offering courses in the teacher preparation program. Subsequently, he became interested in preparing people to teach in the intermediate grades, and once again spent a year studying and a year teaching the sixth grade before he felt competent to conduct courses for aspirant teachers. Some will argue that such a policy is far too expensive for collegiate institutions to implement. However, the counter-argument can be advanced that without such efforts to insure professorial competence, instruction is likely to be far from effective.

Meeting Developmental Needs

Of an entirely different order is the principle that the sequencing of courses and experience in a program should be as congruent as possible with the developmental needs of students. While perfect congruence is improbable, enough information has been accumulated to suggest common developmental needs, recognizing that some students will differ substantially from the norm.¹ Several of these needs have definite curricular implications. Freshmen typically enter college with some vague vocational goal but little understanding of the field, what people in the field do, or how to prepare themselves to enter the field. They need immediate exposure to courses dealing with the field and, even more important, information placing the field in the context of alternatives. Similarly, freshmen typically expect experiences quite different and substantially more difficult than those they had had in high school. A year redundant with courses similar to those in high school seems likely to damage student motivation and enthusiasm.

The median freshman is about 18 years old and is struggling to accomplish several important goals. Physiologically he is trying to correct the imbalance brought about by adolescence. Psychologically he is trying to establish a personally satisfying conception of himself as a distinct entity. Socially he is trying to transfer patterns of relationships developed with parents, siblings and friends to a much wider range of people and roles.

His curricula should whenever possible facilitate those efforts and at the same time help him develop vocational interest, motivation and competence. In view of all that the college student is expected to do, curricula should be challenging but not burdensome. Probably most undergraduate students should have

¹See Joseph Katz and Associates, *No Time For Youth* (San Francisco: Jossey-Bass, Inc., 1970), as one example of a compilation of developmental needs.

no more than about three major curricular activities during the academic year. Those activities should not be all of the same sort. An effective curriculum could have one-third of the formal course experience taken in orthodox, face-to-face medium-sized classes. Another third might be taken as a relatively small group seminar or investigatory kind of activity. The other third could be an individual effort wherein the student learned to work on his own and to draw on appropriate resources as he saw the need for them.

Consistent with that principle, different components of a curriculum should not be segmented according to level or class. An older curricular notion was that students should take general education first, then basic science and theoretical courses, and only after that the more applied and vocationally-oriented courses. In most kinds of institutions such segmentation has not proved satisfying. Undergraduate students have different needs operating at the same time; they need courses which help them relate to their full society. They need courses which stress broad principles, but they also need to feel they are engaged in an educational plan which will result in vocational competence. Thus in each year of a program the curriculum should present an interesting blend of courses and experiences speaking to these various needs. The first year in a teacher preparation program, for example, might include the study of education and some experience in teaching, with the same pattern repeated in the senior year at a higher level of sophistication.

This principle presents some difficulty for those education systems which presume that the first two years will be taken in a community or junior college and the last two years in a state college or university. In such situations it is tempting to lodge all general or common education courses in the first two years, a temptation hard to resist but potentially destructive to student motivation. Two-year institutions should rather devote even more resources to effecting close articulation with upper division institutions so that a freshman in a junior college aspiring to, say, a bachelor's degree in engineering, could take at least some straight engineering work.

Many vocational curricula require that students devote a portion of their time to courses in the liberal arts and sciences not explicitly related to their vocational interests. The reasoning runs that students should be exposed to modes of thinking in the major divisions of knowledge but there is probably a more operative if covert belief that certain liberal arts and sciences are germane to a given vocational program. Thus in recent years business or engineering majors have had experiences in the humanities to add a humane perspective to the specialized vocational work. In practice, however, many such service courses have been designed to accomplish other things, such as teaching fundamental principles to students who eventually would major in that field. Perhaps this matter could be partially resolved if the faculty for a vocational field would specify exactly what they hope to accomplish through exposing students to these non-specialized courses. Those expectations could be compared with the rationale for the various liberal arts and science courses available. If there is

congruity, well and good. If, as one must assume would be more frequent, there is scant overlap between expectation and course rationale, a base would thereby be established to decide that the component was really unnecessary or else that specific curricular provisions would be necessary. In either event the result would be more rational than current practice.

Preparation for Job Entry

This next principle is probably the most controversial to be advanced in this monograph. An undergraduate vocational or careers program should be primarily oriented to immediate job entry. Otherwise it should not be considered vocational. Application of this principle in both two- and four-year institutions can produce a number of worthwhile developments. If a faculty conscientiously reviewed its vocational program and asked whether vocational competence can reasonably be expected at the end of the program, the curriculum and the catalog should be cleared of misleading vocational claims.

This principle might help settle the confusion between the Associate of Arts and Associate of Science degrees and the Bachelor of Arts and Bachelor of Science degrees. Under a new system, the science degree would be reserved for those programs leading to direct employability, without immediate need for further schooling, at the end of the second or fourth year. Thus degrees in accounting, engineering, nursing, teaching or journalism would be designated "Bachelor of Science" or "Associate of Science," whereas degrees in history, psychology, chemistry or engineering science in a two-year institution would be assigned to "arts" designation. The arts degree would not presume job entry without additional formal schooling.

There is another way the degree structure could be reformed to further the principle of job preparation as the heart of occupational education. Spurr recommends a degree structure in the United States consisting of associate, bachelor's, master's, first professional and several varieties of doctor's degrees. He argues that each program level should be self-contained, possess demonstrable integrity and make no presuppositions as to whether a recipient will pursue further academic work.² A modification of Spurr's position is recommended here. The various degree levels should be of two distinct kinds. The arts degree does not presuppose further academic work except when the student has a vocational goal in that field; the science degree does not preclude further academic work but does assume that recipients will be qualified for and will probably take entry jobs upon graduation.

This argument that undergraduate programs should primarily be concerned with entry qualifications may appear to ignore the desirability of education for vocational advancement. The matter is not ignored: undergraduate programs seeking to do both tasks seem to do neither adequately. The first responsibility of the undergraduate program should be job entry, relying on work

²Spurr, *Academic Degree Structures*, pp. 183-190.

experience or further education as the primary means for vocational advancement. The early 1970s seems a propitious time to advance this point of view because of the many developments to provide post-collegiate adult or continuing education.

Flexible Curricula

Another kind of problem has been produced because collegiate institutions have been unwilling to recognize quite fundamental differences between students in four-year bachelor's degree-granting institutions and those in junior colleges offering the Associate of Arts degree. They have insisted, and external forces such as accrediting agencies have reinforced the notion that all degree recipients should have been exposed to a certain proportion of general or liberal education. In effect this argues that educational deficiencies could be diagnosed and prescribed for en masse. Actually, for some kinds of student, such requirements serve to mute, frustrate or terminate deeply held interests and aspirations. The phenomenon is particularly visible in students with considerable artistic talent, who find that any activity not directly related to the development of their talent deters them from self-achievement. It seems plausible that other students might be similarly fanatical with respect to a vocational specialty. Therefore, institutions would seem wise to make program and degree provisions for students who are so vocationally oriented that they reject *a priori* the values of liberal education. Perhaps later in life such students will regret not being forced to take broadening subjects, but that appears a small risk compared to the risk of frustration which contemporary degree structures present for some students.

At the other end of the continuum are students properly described as dilettantes — so interested in so many different things that concentrating too long on one disrupts their development. Institutions ought properly to provide for these students as well. Accommodating these two extreme groups, as well as the large middle group satisfied with the segmentation by courses the academic mind so easily contrives, will require great curricular flexibility and forbearance on the part of conventionally academic faculty members. As a general principle, each institution should provide at least one degree program for every student who is matriculated in the institution. Thus for the highly vocationally oriented student there should be a few vocational alternatives into which students could immerse themselves completely. There should be degree patterns which allow sampling of many different subjects with no necessity for concentrating in any one. One suspects such a policy would go a long way toward making collegiate institutions responsive to the increasingly heterogeneous student bodies they must anticipate accepting.

This same principle of flexibility should be extended to the range of curricular and learning activities embodied in various vocational programs. Many of the reforms and innovations described in Chapter III are attempts to avoid the sameness which has characterized college programs since the turn of the century.

The academic revolution of 1870-1910 produced the formal academic course meeting periodically each week, the lecture, laboratory and library as principal pedagogical tools, the course credit as a means of academic bookkeeping, the department as a means of academic governance, and the formal definition of degrees as completion of a certain amount of formal instruction. Each of those techniques still has validity but each has proven somewhat unworkable for some kinds of institutions and some kinds of students. The quest is now on for alternatives to replace previous modes or to function alongside them.

COUNSELING AND GUIDANCE

A theme running throughout discussions of improved vocational education in all fields is the imperative for more adequate counseling, guidance and advice. The formal concept of careers education expressed the need for counseling from grade school through graduate and professional school. Students constantly indicate they need information about the nature of possible vocations and about appropriate steps to achieve a satisfactory career. While the entire graduate education program serves a guidance function by helping students test their aspirations against the reality of courses, there is still need for more direct intervention. Even at the end of a college experience, students express anxiety and reflect insecurity as to how to display their capabilities to insure getting a job. Many of the major recommendations published by the Carnegie Commission on Higher Education require adequate counseling. Despite general awareness of the importance of counseling, the need apparently is not being met. The question thus remains whether colleges can so organize themselves that counseling and guidance can be of genuine help.

In general, only a qualified "Yes" answer can be given. Adequate counseling can be made available if adequately financed. Professional salaries for the time-consuming one-to-one or small group counseling which has seemed essential for effectiveness is too expensive for most institutions, however. But even generous financing is not enough unless people are available to do counseling when students need it. Relatively large centers with 20 or 30 counselors are inadequate for student populations of eight or ten thousand. If all faculty members and professionally involved administrators redeployed a portion of their time to the counseling function, however, sufficient mature manpower would be available, even on campuses with a large student-faculty ratio. Similar results could be obtained by using part of existing faculty time, augmented by adequately trained undergraduate students in guidance functions.

Even with sufficient manpower, however, vocational counseling will remain ineffective unless there is close and continuous articulation with secondary schools and with the world of work. Northeastern University has been so successful in attracting, holding and placing students in vocations in part because of the close relationship the faculty has with the world of work through the cooperative work-study program.

Of course, vocational guidance literature should be pervasively available for student consumption.

Different types of collegiate institutions will need different methods to achieve adequate vocational counseling. At some schools, particularly liberal arts and junior colleges having teaching as their primary mission, all faculty members could take on vocational counseling responsibilities. They would be backed by a counseling center that would conduct in-service guidance training for faculty members, make guidance materials available, assign students to advisers in an equitable way, supervise the level of advising, and be available to work with students referred to it. If the institution operated with a 15 to 1 student-faculty ratio, the expected advising load would be 15 students. With such a load students should have enough face-to-face contact with an advisor for successful outcomes.

More complex institutions whose faculties might well refuse to participate in such a structured system would need different approaches. A centralized guidance office seems indicated to organize, supervise, staff and train the staff of the decentralized system. Where appropriate, interested faculty members and people working in residence halls could be recruited, and considerable use could be made of undergraduate students trained to deal with academic and vocational problems. The best insurance that most students would receive the attention they need would be the existence of the central guidance office, whose primary function is organizing and developing competencies of others who provide counseling services.

EVALUATION

Almost equally stressed in connection with vocational preparation is the need for careful and continuous evaluation. Many reforms described earlier are performance-oriented or performance-based, a description which clearly calls for rather precise evaluation. Much of the interest in off-campus study, external degrees and the like assumes valid evaluations of student gains. As institutions attempt to provide for new students, modifying requirements for entry but requiring precisely evaluated excellence of performance at point of exit, major responsibility is thrust upon evaluators. The articulation between levels of education suggested by the concept of careers education also demands careful evaluation and interpretation of results. If, as seems likely, the mere possession of a degree eventually becomes insufficient for vocational certification, even more refined devices will be needed to serve this purpose alone.

Unfortunately, formal evaluation in American higher education generally has not been outstanding. A great deal of progress has been made in technology of measurement for predictive purposes. There is considerable accomplishment in paper-and-pencil measurement of academic achievement. However, in the most significant uses of evaluation, the record is not good. Evaluation of student performance in individual courses continues to be capricious and unreliable. Efforts to improve reliability have been so

time-consuming that faculty members, as a general rule, will not engage in them. Efforts to improve the scope and the validity of faculty evaluation of students have proven unworkable for the same reason. Some faculties in professional fields—for example in nursing education—have attempted to employ the Taxonomy of Educational Objectives constructed by Benjamin S. Bloom and associates to build curricula and provide a basis for evaluation.³ Occasionally the curriculum construction has proceeded reasonably well, but for the most part faculties have not spent enough time to employ effective teaching techniques to achieve the objectives identified by the taxonomy. Faculties which created new curricula or attempted innovations have for the most part been unable to evaluate the effectiveness of the changes. As a general rule, evaluation has rested on more-or-less casual solicitation of student and faculty opinion of the new enterprise.

This matter of evaluation is so significant that institutions should take steps to resolve the issue in one of several ways. New and proposed educational structures assume that precise evaluation will take place. Yet such evaluation can not take place with present budgetary techniques and faculty attitudes. Institutions could, therefore, reject evaluation and stop assuming evaluation will be possible in new programs. Such a posture would allow the casual ways performance has been gauged in the past to continue.

The other option is for institutions to take the need for precise evaluation seriously and devote resources to making an evaluation program work. As a start, an institution should probably devote five to seven percent of the total instructional budget to formal provision for evaluation. No new curriculum or program could begin unless explicit plans for evaluation had been developed and resources provided to conduct that evaluation. Periodically, all vocational curricula would be exposed to a comprehensive evaluation by members of the faculty, members of central evaluative staffs, and external evaluators. It is impossible to predict whether institutions will take the option of comprehensive evaluation. The odds are that they will not. However, the forces calling for greater public accountability may be sufficiently strong to bring about a radical change.

ON-CAMPUS AND OFF-CAMPUS EXPERIENCE

Another major strand running throughout efforts to improve vocational preparation is the educational significance of all sorts of off-campus resources and experiences. It is obviously a belief basic to cooperative work-study, but is implied in many of the new problems-centered courses as well. Much thinking about external degrees and non-traditional modes of education assumes that students can fashion off-campus resources to meet their own educational needs. Some innovative programs, such as the University-Without-Walls, operate deficit-free because they assume much

³Benjamin S. Bloom, *The Taxonomy of Educational Objectives: The Classification of Educational Goals by a Committee of College and University Examiners* (New York: Longmans Greene, 1956).

relevant educational material can be obtained from sources other than the university. Hence, there is not need for the university to provide library resources, continuous counseling and the like. There can be no serious objection to using off-campus resources and experiences. Much learning does take place in all sorts of informal settings. Yet excessive reliance on work or the experiences of living, or contrived uses of off-campus resources raises various questions concerning the mission of colleges and universities.

Presumably, these institutions are charged with considerable responsibility for preparing people for work. Because other modes proved inadequate or were too inefficient to supply the needs of American society, people formerly learned the skills of nursing, medicine, the practice of law, accounting, use of machinery and the like, through apprenticeships or on-the-job training. Yet that training can be more focused and effective in an educational institution. The organizing and synthesizing of materials found in textbooks, library holdings and the like is a relatively efficient way of bringing individuals up-to-date concerning a field of endeavor. Similarly, laboratories, by simulating much larger and more complex phenomena can quickly develop principles an individual needs to use when he actually encounters the more complex situation. A quandary remains. The present interest in the non-traditional would suggest that the more focused effort of educational institutions might be replaced. However, this seems unwise in the light of experience.

A sounder position would be for institutions to make use of off-campus resources and experiences in limited and supplemental ways. They should make every effort to insure that the bulk of experience employed for academic or credentialing purposes is under the control of and subject to manipulation by the educational institution itself. This principle should extend to faculty, library holdings, student research activities and every other part of the educational program. Part-time faculty may be used effectively but only as adjuncts to a larger cadre of core faculty. An educational program relying exclusively on part-time faculty should be rejected. Interlibrary loans and public libraries can be used, but only to supplement library materials under control of the institution. In the technical education sphere this point can be dramatized by urging that if an institution offers a technical training program which relies on students gaining hands-on experience in an off-campus installation, the institution should probably not be offering such a program. Within education there are suggestions that the bulk of effort to prepare teachers should take place in schools rather than in colleges. To the extent that this notion has validity, colleges and universities should divorce themselves from teacher preparation.

NEW STUDENTS

One of the most delicate issues facing vocational, technical or career education — or for that matter facing all higher education — is how best to provide for the many new kinds of students who

will be clamoring for entry, preparation and credentialing for jobs. There are the large numbers of black, Chicano, Puerto Rican and native American students who come from an academically impoverished background, but wish, quite properly, to enter the mainstream of the nation's economic life. There are also increasing numbers of students, from many ethnic groups, who manifest low academic aptitude and low prior academic achievement, and students from economically depressed backgrounds. Both of these groups are disadvantaged with respect to coping with the higher educational enterprise as it currently operates, yet they seek entry into the economic mainstream. Many women find the educational system as it operates (including admission into some vocational fields) unacceptable for their purposes.

Each of these groups seemingly should be dealt with separately, for their needs are discrete. There is, of course, danger in that dealing with separate groups differently perpetuates class, caste or sex status differences. But no tested way is known that can eventually eliminate those status differences. Nonetheless, a general point of view can be advanced for each group. It is here illustrated with respect to black, Chicano, Puerto Rican or native American students.

If such students are to enter the mainstream of the American economic life, the notion that there are black or Chicano vocations must be rejected. This is not to say that the unique cultural experiences of various groups should not be stressed by educational institutions, nor that the uniqueness of various cultures should in any way be denied. But it does argue that in the vocational sphere there are norms of performance which must be met by individuals seeking entry into a vocation regardless of the person's background. The educational idea of relatively open access to educational programs, coupled with high standards as the condition for successful exit, is a worthwhile starting point, but the task of bringing academically disadvantaged individuals up to those exit standards presents enormous difficulties. Obviously the financial needs of disadvantaged students must be met. Then there must be major remedial efforts to remove various academic deficiencies. There must also be strong psychological support to sustain disadvantaged students while they endure a prolonged exposure to formal vocational preparation. While these broad, guidelines are not much help operationally, they may establish the parameters within which experimentation to solve this vexing question can be conducted.

Chapter V

Collegiate Responsibility for Occupational Education

Having examined the range of practices and ideas concerning formal education for careers or occupations, it would be well to place those activities in proper perspective. Such a perspective could assist institutions materially in deciding what of their resources to deploy for occupational education.

FUNCTIONS OF UNDERGRADUATE EDUCATION

While collegiate institutions serve a large number of functions, such as the creation of new knowledge and the provision of direct services to people outside the campus, with respect to undergraduate students they serve a very limited number of functions. The first of these, most simply stated, is custodial. The American work force is not prepared to absorb all high school graduates at once, nor typically does the American high school prepare students for direct job entry. In generations past youth not needed in the work force could be absorbed by a steadily increasing frontier, or by the military at certain times, or by small farms and family industries. Today most such options are closed. Consequently full adulthood is reached at a later age. Colleges have served well to occupy such young people until the job market is ready for them and they are prepared for it.¹ Of course other institutions could perform this function — youth camps, a national service corps or even the military. However, educational institutions, which individuals attend voluntarily and for varying lengths of time, seem better suited for the task. Then too, colleges and universities may be cheaper custodial agencies than the military or a national service corps.

The second major function is that of an enculturative or socializing agency to induct students into adult society by teaching them a number of coping skills and providing the language to communicate effectively. Fundamentally, programs in

¹Lewis B. Mayhew, *Contemporary College Students and the Curriculum* (Atlanta: Southern Regional Education Board, 1969), pp. 10-11, and *Reform in Graduate Education* (Atlanta: Southern Regional Education Board, 1972), pp. 143-145.

general or liberal education teach a common language, body of allusion and metaphor by which people interact in effective and more interesting ways. Through student and faculty interactions, students learn about coping with adults other than their own families. Collegiate institutions provide students an opportunity to learn under relatively unthreatening conditions the skills to cope with bureaucratic structures. One is forced to conclude that registration procedures have not been simplified because they prepare students to live with faceless, irrational bureaucracy. The fairly steady drift of institutions to a coeducational status is defended by the argument that it is good for maturing youth to learn to function with people of the opposite sex. Under this rubric are several important functions. A college or university congregates appropriate marriage mates while screening out inappropriate choices, and at the same time provides opportunity for learning skills of courtship and marriage.

A third major function is that of screening for certain roles, vocations or professions. Colleges and universities create long, complicated, and frequently difficult human obstacle courses. Student survival may indicate perseverance, ability to defer gratification, ability to plan, and ability to cope with a complex human phenomenon. All these are essential for success in a complex society, and students who have demonstrated them are the more promising job candidates. The screening function is most clearly demonstrated by some liberal arts colleges whose curricula are not specifically related to business and finance but which, year after year, send large proportions of their graduates into financial institutions. One can only assume that the use of a college degree in almost any field as a credential for advancement in banking or the military acknowledges the validity of screening.

Other screening devices could be imagined. For example, batteries of tests can be constructed which would measure perseverance, tolerance for ambiguity, tolerance for frustration and the like. However, the college, consistent with the democratic ideal, allows individuals great latitude as to whether they wish to be screened and allows people a number of chances to work through the obstacle course. Thus the lower-class youth who perseveres to a bachelor's degree and who absorbs a certain kind of culture has, in the past at least, been able to change his class reference group.

In a sense, a part of the previous functions is to provide time and relative tranquility for young people to think through and adjust to their own self concept. In earlier times the rapid achievement of adulthood, physiologically, sexually, sociologically and economically, provided for a quickly assimilated concept of self in a less complex society. Today's young people in anonymous urban or suburban complexes have not experienced many of the devices which could help them comprehend who they are.

Compare a person growing up at the turn of the century with a person growing up in the 1970s. The earlier individual probably lived on a farm, in a village or small town, or in a relatively stable city neighborhood. His school was within walking distance, as were his church, neighborhood stores and suppliers of needed ser-

vices. On the streets and in the church, school and stores he encountered people who knew him and his family. Daily the young person's selfawareness was reinforced. The 20th century counterpart misses much of that experience. Bussed to school, probably not affiliated with a church, shopping in relatively impersonal shopping centers and seeing unfamiliar service workers only occasionally, he has a much more difficult problem discovering and living with his identity.

A college, particularly a residential college, can serve as a surrogate for those earlier methods of socialization. Within a limited geographic area the individual comes to know and interact frequently with a number of people against whom he can test his own notions of who he is. He can study materials helpful in thinking about himself, he can encounter professionals employed to help him achieve a sense of self, and there is sufficient time to mature his feeling of selfhood.

A fifth function is that of preparing people for specific jobs. A college cannot effectively prepare people to enter all jobs, nor even a majority of jobs, but there is a limited number of occupations for which a college education seems more effective than apprenticeships or on-the-job training. For such jobs as nursing, accounting, engineering or teaching there can be a direct relationship between what is studied and what is done on the job. The task is for a collegiate institution to decide for which vocations it will prepare individuals as opposed to those for which other agencies should be responsible.

GUIDELINES FOR SELECTING PROGRAMS

Beyond the principles for program selection discussed in Chapter IV are a number of questions which can serve as guidelines for two- and four-year undergraduate colleges making such decisions.

1. *Does the occupation require the use of a definite and reasonably complex technology?* Virtually every aspect of work requires some technology, but levels of complexity and sophistication differ. Wielding a shovel, operating a dishwasher or typewriter or keypunch, setting type, navigating a fishing boat, designing a machine, creating a computer program, and undertaking surgical procedures on the human brain represent something of a range of complexity. Colleges and universities requiring extensive time commitments obviously will concentrate on those vocations requiring a reasonably complicated technology. Drawing the line between appropriately complicated technology and technology less sophisticated is, of course, enormously difficult, but the exercise of trying to do so may be the start in delimiting an appropriate occupational domain. Thus a four-year bachelor's degree institution might question a home economics program that concentrates on the operation of equipment designed primarily for home use. Such skills are probably better

learned in other institutions. Where skill levels are appropriate for collegiate instruction, however, the school should provide direct opportunities to learn and practice them.

2. *Does the practice of the occupation require understanding of an identifiable body of theory or basic science?* One argument to support the American practice of including much vocational preparation within colleges and universities is that such an arrangement allows student exposure to needed theory and basic science. Belief in the value of that theory underlies such requirements as x many hours of chemistry for a fashion design major concerned with fabrics. Where there is demonstrable need for understanding of basic theory — such as the pharmacist's need to understand chemistry and physiology — the college should provide that learning, but many college vocational programs require study in only tenuously related basic arts and sciences.
3. *Will specific skills needed in the practice of the occupation be taught in the college program?* Employers expect the college graduate to demonstrate specific skills needed by the occupation, although in virtually all occupations there is a period of induction and on-the-job training. As a general criterion, however, the principle of direct demonstration of occupational skills can certainly disqualify as occupational such programs as bachelor's degrees in psychology, chemistry or sociology; and associate degrees in journalism, engineering or computer design. This principle also can indicate the content needed for a curriculum to be considered occupational: the student must learn how to put theory into practice.
4. *Does preparation for the occupation require teaching by faculty who have demonstrated competence and experience in the occupation itself?* As engineering faculties became more science-oriented, with young engineers moving directly from graduate school into teaching positions, the number of engineering teachers with practical experience began to decline. Undergraduate engineering programs became less effective in producing individuals technically competent to perform engineering tasks. There is a strong suspicion that the decline of the United States' technological ranking is correlated with the increase, in the nation's engineering schools, of emphasis on engineering science, and the de-emphasis on design and other hands-on experiences. There is also some limited and impressionistic evidence that as schools of education, such as Stanford, increasingly recruit individuals without definite field experience in education, the schools lose influence in such things as school system administration. Unless a college recruits practitioners and provides continuing field experience for professors it should not offer occupational programs. This is not to contend that all faculty members in a professional field must be experienced practitioners.

There probably is need for important components of theory, but a faculty composed almost entirely of theoreticians can scarcely develop vocational competencies in students.

5. *Is collegiate occupational education likely to produce demonstrably better job performance?* If, as some have contended, there is little or no difference in job performance between teachers extensively prepared in programs of professional education and those with little more than a brief practice experience, the validity of teacher preparation programs can be seriously questioned. If recipients of bachelor's degrees in English or history perform about the same in a first journalistic job as do graduates with journalism majors, the same skepticism is warranted. Determining such a matter with any precision is a formidable research task, but enough specifically trained and more generally prepared individuals enter the same occupations that closer communication between occupational faculty and practitioners is desirable. Such conversation could suggest that entrants in many vocations need not specific task preparation but rather broadly applicable skills of language and personal behavior. Or it could produce the conclusion that occupational curricula should develop even higher levels of performance in certain needed skills. Or, as seems most likely, it could lead to recognition that occupations differ radically with respect to the need for preparation in demonstrable skills.
6. *Is it difficult to conceive of a person demonstrating competence in the occupation without special education?* It is, for example, hard to envision a competent certified public accountant, registered nurse, or actuarial statistician who never completed an intensive educational program. However, a beginning social case worker, an office manager, a salesman or even a secondary school teacher might not have received specific job training in a degree program. The employment section of a newspaper can quickly reveal that the need for formal degree job preparation varies greatly:
 - Accounting supervisor — formal education probably essential.
 - Audiovisual technician or secretary — some specific training needed but degree preparation not essential.
 - Food services coordinator — formal education probably not needed.
 - Health advisor — formal education in nursing essential.
 - Real estate manager — formal education probably not required.
 - Real estate salesman — formal preparation not required except knowledge necessary for state licensing.
7. *Does the occupation require a credential, qualifications for which include a college degree?* As educational requirements for credentialing purposes increase, two- and four-year colleges are likely to become more intensively

involved in vocational education. Whether such a development is desirable may be questioned. The Carnegie Commission on Higher Education exposed some of the complexity of this matter by noting that

Even though educational requirements are not ubiquitous, there is no question that they have been rising. The less favorable job market anticipated for the 1970s will probably exacerbate this tendency, but so will the increasing complexity of managerial decision-making which will lead to increased preference for training of managers. On the other hand, civil rights pressure and court decisions, as in the Griggs case, will serve as a counter-force, but they will probably be more effective in discouraging formal educational requirements than in eliminating informal employer preferences.

It should also be kept in mind that the movement of college graduates into occupations in which they had not previously been employed to any considerable extent may have, in some cases, quite positive aspects. For example, during the recent recession police departments in major cities found that they received increasing numbers of applications from college graduates or from persons with some college education, and some departments, like the one in Atlanta, adopted an apparently successful program of recruitment of college graduates. Increasingly it has come to be recognized that in complex urban situations the police officer is often in a situation in which he has to make a difficult decision on some point. Training and analytical approach to decision-making may be an advantage in such a situation. There has been some tendency for a slowly rising number of police departments to require one or two years of college, as well as a tendency to provide for released time plus educational costs to enable policemen to take appropriate courses in nearby colleges.

However, college education requirements for policemen as for other personnel are a matter of controversy. It has recently been reported that New York City is contemplating requiring at least one year of college. On the other hand, in Berkeley, California, which has long required two years of college for patrolmen and which has been known as the City of College Cops, several members of the city council recently proposed reducing the educational requirement to high school graduation in order to get more blacks onto the police force. The proposal was rejected but is still a matter of controversy.

The Commission then faces the matter forthrightly by recommending:

Employers should not raise educational requirements in response to changes in the job market for college graduates. We strongly recommend that educational requirements should not be imposed except where they are clearly indicated by job requirements.²

Nonetheless, if credentials require collegiate education, colleges and universities must respond by conforming to credential

²Carnegie Commission on Higher Education, *College Graduates and Jobs: Adjusting to the New Labor Law Situation* (New York: McGraw-Hill Book Company, 1973), pp. 169-170.

requirements while simultaneously seeking to transcend them in developing competence.

8. *If the occupation requires broad theoretical or scientific education for long-term professional growth, are college courses so organized and taught that the student internalizes the knowledge for effective use later in his career?* Individuals tend to forget what was learned immediately after study, and within months few vestiges remain. Arresting or reversing this curve of forgetting seems to require sustained immersion in a subject so that a threshold is reached beyond which many different experiences increase and reinforce what was learned. The study of foreign language is an example: few linguistic vestiges remain after one or two years of learning, but at the end of a third or fourth year of study a threshold is reached and linguistic patterns are deepened as time goes on, with only modest systematic practice.

The implications of this point for occupational curricula are clear. If a year's course in inorganic chemistry is required for a home economics major it should be so contrived that the resulting approach to the problem is likely to last. Or if police need certain kinds of decision-making skills, approaches to decision-making taught in college courses should be sufficiently internalized to persevere over time.

9. *Does the occupation require a specialized vocabulary most effectively taught in colleges?* Much of occupational practice involves communication about external reality expressed in a specialized and unmistakable vocabulary. The college should take care that the vocabulary it teaches is both relevant and current. One reason law schools seem successful in preparing people for legally-related jobs is that while they do not teach actual practice, they do teach a specialized and esoteric vocabulary so intensely that the graduate can communicate with others in legal work. That vocabulary could be developed by other means, but the law school is probably the most effective technique.
10. *Is there likely to be both short-term and long-term demand for individuals prepared for the occupation?* This is a critical matter which must be dealt with cautiously. Liberal arts colleges and state colleges which previously produced large numbers of teachers are experiencing enrollment declines as the need for classroom teachers declines. They are not aggressively searching for high demand occupations for which they are competent to prepare people. The Carnegie Commission on Higher Education notes:

that students' choices of fields of study are highly sensitive to shifts in the job market and can be relied upon to be a major force in the process of adjustment to occupational shifts. Colleges and universities will be well advised to be guided by these changing student choices in the allocation of their resources among fields, except, as we have noted earlier, that the shifts may be temporary.

The Commission goes on to point out that:

Some progress has been made in recent years in developing a more adequate understanding of the types of adjustments that occur in the market for educated manpower, but there is need for much more research before we are likely to develop adequate long-range predictions of the outlook in particular professions.³

APPROACHES TO CURRICULAR ANALYSIS

Such guidelines should help curricular decision makers. However, decisions on programs and their content still rest on considerable guesswork. Hence it is desirable to examine some approaches to analysis which can further assist in the making of curricular decisions.

Tyler's Rationale

Perhaps the most potent tool for curricular analysis is the rationale developed in the 1930s by Ralph W. Tyler. He argued that curriculum development requires statements of broad objectives which rest on unchallengeable values which cannot be validated or invalidated. If an educational institution chooses to prepare pickpockets, ministers or surgeons, that decision is its prerogative. However, the utility of such a decision can be tested in several ways. The social utility of the anticipated educational outcome should be questioned. The degree of personal satisfaction to the individual achieving the outcome should not be ignored. The question of whether the desired outcome can be produced consistent with basic laws of learning should be answered. Whether the desired outcomes are appropriate to the maturational level of students should be considered.

These broad statements of educational objectives can set the general direction of a curriculum but are too broad to be used to make detailed curricular decisions. A program in teacher preparation, for example, may intend to develop sensitive teachers who respect the dignity and worth of human beings. For such a commendable goal to have meaning, however, the broad objective must be re-expressed in much more detailed statements of desired human behavior. Thus the teacher education program should find behavioral definitions for "sensitivity" and for "holding human beings in high esteem."

After behavioral objectives are specified, the major curriculum and instructional building process begins. This is a search for learning materials, conditions or situations which have a reasonable chance of producing the desired specified objective. The teacher training program will seek techniques for developing sensitivity, perhaps through deep immersion in literature, extensive sensitivity training, in-depth study of personality psychology or early clinical experience.

Once learning experiences have been found and perfected, the next step is to test whether they produce the desired changes in

³Carnegie Commission, *College Graduates and Jobs*, pp. 185-186.

behavior. This is the measurement and evaluation phase of the analysis which requires technically precise methods. Continuing with our example, this phase requires determining whether exposure to sensitivity training produces teachers who react sensitively to students and fellow teachers.

This general approach is laborious and time-consuming and is generally applied grossly and intuitively in curriculum construction, if at all. Thus a faculty in social work may agree on some of the behaviors needed by social workers and assume that certain patterns of courses will in some way or other produce those behaviors. If the analysis were more rigorously applied, it is conceivable that it could produce significant curricular refinement. The earlier cited curriculum for bio-medical engineers is a case in point. The actual behaviors of bio-medical engineers were identified. Then the aspects of a number of fields, such as physiology, mechanical engineering and surgery, most likely to produce the desired skills were selected and combined into a behaviorally organized program.

Use of Panels

In no way in conflict with this Tyler style of analysis is the use of panels of people to help a faculty decide on desirable occupational programs and their curricular content. Illustrative was the effort of one junior college to develop a pattern of occupational and vocational programs. First, members of the community were polled about what the junior college should offer. Then a geographic, sociological and economic profile of the region was prepared and a panel of experts on junior college education was asked, in the light of their knowledge of junior colleges and their understanding of the community, to recommend appropriate offerings. These two sets of recommendations, when compared with vocational programs offered by comparable junior colleges, produced overlap which then served as the principal curricular area in which the institution would offer programs.

MARKETING RESEARCH

A more sophisticated approach to determining vocational programs is through some variant of marketing research. Recently the California State University and Colleges attempted to determine whether there was need for external degree programs in the state and, if so, what programs would be most desirable. That study, financed in part by a private foundation

was concerned with present educational planners at CSC, Sonoma, with conservative projections on the potential enrollment in various programs within their service region. In addition, this study attempted to get other detailed information which would be useful to educational planners in developing programs most likely to succeed and to be useful to those served by the college. Finally, data were gathered to help get developing answers toward broader-based questions, i.e., questions of relevance to the CSUC system and the external degree approach. For example: What is

the effect of fees? What are the main reasons for enrolling in an external degree program rather than in another degree/certificate program? How acceptable are various degree models of instruction?⁴

Task Analysis

A form of analysis which can assist in curriculum building is task analysis. Large numbers of incidents performed by people in an occupation are collected. These incidents, when categorized, identify a set of traits which the curriculum should help develop in graduates entering the occupation. An early example of this approach was the diary study conducted at Stephens College by W.W. Charters. He asked several hundred women to keep diaries for several weeks. He classified the tasks women performed under nine broad headings which he then converted into nine curricular areas which came to comprise the Stephens program.

A refinement to this task analysis approach was the critical incident technique devised by John Flanagan as a means of training fighter pilots in World War II. People are asked to record incidents of effective performance of a specific job — in the first case flying fighter planes. When large numbers of these indexes or incidents are accumulated and classified, the aggregates reveal skills which should be developed and reinforced and skills which should be repressed. The technique has been used for a number of vocations, including teaching. Students in eight Kansas liberal arts colleges were asked to record incidents of effective and ineffective teacher behavior. These, when analyzed, produced a list of traits which could be modified through in-service training programs.

There are, of course, dangers to using task analysis. It results in a static picture of an occupation, and training programs may be designed for the past rather than for the future. Strict adherence to a task analysis approach can also produce a training program without desirable liberal components of theory or basic science. Nonetheless, on balance, collegiate institutions have probably erred more in the direction of ignoring task analysis rather than overutilizing it.

Computer Simulation

A tool which should have increasing relevance for curriculum planning is the computer, programmed to allow simulation planning to help decide among alternative programs and techniques. While simulation planning is still rather primitive, sufficient experience has been obtained to suggest its potential for curriculum building. One early attempt was an effort by Emory University to develop an optimum course demand simulation model to indicate the kinds of space and staff Emory would need in the distant future and to develop a course scheduling device which would

⁴Frank R. Siroky, *The Need for External Degree Programs in California* (Los Angeles: The California State University College Commission on External Degree Programs, 1972).

optimize student and faculty satisfaction with the quarterly class schedule. The University of Washington tried to accumulate historical information on student program choices and then to determine what effects various modifications might have on the University.

More recently, Wheaton College in Massachusetts worked with Systems Research of Toronto to prepare a computer-based simulation model of a liberal arts college which could help Wheaton consider various program alternatives. Systems Research had developed programs reflecting Canadian junior colleges which were adapted to fit American liberal arts colleges. A program has now been completed, labeled "Campus Six," which enables planners to simulate the result if any of a number of events transpired. Currently, the EXXON Foundation is underwriting projects in liberal arts colleges to test the applicability of simulation planning for many educational problems.

Outside Consultants

Another technique used with some success to help institutions plan curricula is the outside expert or panel of experts. One interesting variation was an effort by Seattle Pacific College to study several curricular models and then adopt a variation of the most viable one during the 1970s and '80s. Three outside consultants were each asked to spend a week on the campus, to form impressions of the institution's potentiality and then to indicate the sorts of programs the college might reasonably offer. After the reports were in, the faculty, board and student body pondered the alternatives and began to make decisions.

St. Andrew's College in Laurinburg, North Carolina, used outsiders differently. Before the college opened and, indeed, before a president had been appointed, a panel of experts on higher education was convened and asked to invent a curriculum for a brand new institution. That curriculum was put into effect almost exactly as recommended and was operated for a ten-year period. At the end of ten years another panel was convened and asked to recommend the curriculum for the next ten years, with the institution providing assurance that it would accept recommendations made. The institution is now approaching a third use of this panel technique, and apparently has been rather pleased with the results.

Self-Studies

A theoretically promising technique of analysis which in reality has been far from satisfying is the institutional self-study. Most institutions have been required to conduct institutional self-studies in connection with the accreditation process. However, these have not been particularly helpful to the institution itself because they were, in a sense, briefs to impress an outside evaluation group. A number of institutions, however, have initiated comprehensive studies to assist planning and decision-making for the future. These expensive and elaborate studies frequently have produced

long lists of recommendations regarding virtually every aspect of institutional concern. However, few programs have been started, eliminated or modified as a result of self-study recommendations. It is hard to know why institutional self-studies have not been more productive. But one important reason is that each curriculum is the responsibility of a department which is unassailable from outside and unchanging internally. Thus self-study can recommend hundreds of desirable changes, but unless those actively involved in the program are willing to change, nothing is likely to happen.

While institution-wide self-studies have not proven particularly helpful, similar work by faculties of professional schools or departments do have potential for occupational curricula. An example from the School of Education at Stanford University illustrates the technique. The strong research faculty in the concentration for educational administration was composed of individuals each actively pursuing his own interests. The curriculum was a patchwork of courses planned primarily to further individual faculty members' interests and concerns. Student dissatisfaction was rising and practitioners in the field had begun to turn antagonistic toward the Stanford program. Attempts made during the academic year to bring about curricular change proved abortive, primarily because of lack of time and inability of the faculty to give sustained attention to curricular matters. Finally, with outside financing, the faculty committed itself to a month of intensive concentration and work on the curriculum. Working papers were prepared by each faculty member, and additional insight was provided by carefully selected outside consultants. The combination of increasing frustration with the status quo and the intense interaction involved in the curriculum planning effort produced consensus on faculty desires for the program and how the program might better utilize faculty resources, meet students' needs and prepare readily placeable administrators.

An intensive faculty planning activity of this sort is relatively expensive. However, the expense can be warranted if a more effective training program can be produced.

The Issue of Technical Education

One major issue with respect to appropriate occupational curricula for two- and four-year institutions is whether there is such a thing as technical education discrete from college education. If so, the implication is that colleges and universities should refrain from offering technical education or should offer it in specifically designated administrative units.

One point of view is that technical education is a discrete entity, as a report concerning the future of the University of Oklahoma argues:

The term technical education is confusing because it is used to reflect many different goals. To those interested primarily in economic growth, it means manpower with technical skills sufficient to attract or create a more sophisticated base. To those

whose goals are elimination of unemployment and poverty, technical education means training in a basic or minimum employable skill. To those interested in the professions, it may mean technical training in skills needed by a profession; but in a sub-baccalaureate program that concludes with a certificate or an Associate degree.

There is another more recent meaning of technical education — that is paraprofessional education. By this we mean an academic, nonprofessional baccalaureate course of study that certifies a graduate to work within a profession but not to practice it fully. For example, medical or laboratory technicians, engineer technologists, legal technicians and law and court clerks all demand general education, because their professions require understandings of such things as science, English, mathematics, government, and human values. But paraprofessional education does not require the intense concentration of professional training nor is it purely a program in liberal education.

There is much technical education that the university should not provide. Are there any principles that can guide us in how and where to provide what kind of technical education? We think there are two. One principle is that the university should assume major responsibility for statewide leadership in developing assistance, curricula, and technical education administrators for the state needs. The other is that we should keep attuned to the long-term needs and technical competence in the professions, so that programs in the professional schools can be closely related to them as in the training of educational technicians, medical technologists or engineering technologists. By observing these two principles we can help understand what the university should do in technical education.

Technical education as an alternative to the undergraduate education has some significant implications that cannot be passed off lightly. The university is an essential instrument for serving the needs of established values, and institutions such as business and the professions. But the reaction to this need-serving function can come in the form of objection, as at Berkeley and Columbia, not to the competence of the teaching but to the university's role as an indoctrinating agent of the social order.

It is true that technical education also serves particular business or professional interests in society, but there is one basic difference. It makes no pretense that its role is something other than teaching how to do something; and that may be less objectionable to an alienated subculture than indoctrination.

Thus technical education can reach the dropouts and deprived minorities. The Black Power movement in Harlem wants little to do with any culture but its own. Job or skill training is the lesser of the evils to that movement. Student power is oriented along much the same lines — a challenge to established values and a quest for values.

The point of this admittedly biased interpretation is only to show that technical education can be one means of beginning to reach dropouts or minorities that may be more acceptable to these groups than college education. And we should plan for it to be

one alternative for them, fully conscious of its great potential as well as aware of dangers inherent in over-emphasis. This alternative should not be used in any way to discriminate against drop-outs or minorities to keep them away from college. It should be an alternative to all post-high school students who can have better lives than college failure implies.⁵

Such a conception has an appealing logic and points to state educational systems characterized by marked segmentation of function. It is the sort of rationale which underlies the Minnesota and Kansas systems of universities, state colleges, private liberal arts colleges, comprehensive junior colleges and area vocational schools. However, that structure produces redundancy, especially with respect to the mission of junior colleges and area vocational schools. They offer comparable occupational programs, frequently in the same locale, with no clear delineation of their spheres of influence. One could suggest that such community junior colleges were redundant, that their occupational education function could be absorbed by area vocational schools while their bachelor's degree parallel curricula could be absorbed by state colleges, liberal arts colleges and universities. As college enrollments begin to stabilize or decline, the possibility of this redistribution of function appears more and more plausible.

Another posture is to contend that the University of Oklahoma definition of technical education distorts the meaning of the term. There can and should be technical education in complex universities, state colleges, liberal arts colleges, junior colleges and area vocational schools, as well as in many special purpose and proprietary schools. It is not the "technicalness" that discriminates, but rather the complexity of occupational demand and the time needed to develop in individuals abilities to meet occupational requirements.

Such a conception also leads to segmentation by function, but could make the undertaking more efficient through eliminating problems of articulation. Thus, a student who wished to enter an occupation requiring three or four years of formal education would be routed to a bachelor's degree-granting institution. If his occupational aspiration required only two years, he would enter an associate degree-granting institution which would not contaminate its purpose by offering the first two years of a four-year program. Individuals aspiring to occupational roles requiring less than two years could be accommodated in area vocational schools, proprietary schools, short-course branches of universities, or through university extension or continuing education.

Forces for Reform

Education for occupations, just as education in the liberal arts and sciences, education for the professions and, to some extent, graduate education in the arts and sciences is in ferment, and reforms and innovations are widely and intensely urged. The pat-

⁵Gordon A. Christenson, ed. *The Future of the University* (Norman: University of Oklahoma Press, 1969), pp. 75-77.

terms likely to emerge as the curricular form for the future will depend upon forces pressing for change, changes receiving the most attention, and the potency of conditions favorable to change.

There are several factors which seem likely to make education in the 1970s and '80s different from other periods. First, the public and elected officials are becoming convinced that higher education has become too expensive and influential to be allowed to continue old practices. As long as higher education was relatively inexpensive and dealt with a small proportion of upper class youth, it really did not make too much difference whether it was effective or ineffective. But by 1975 higher education will be using three percent of the gross national product and will be the largest single people-using industry in the country. Even now people are beginning to sense some validity to the contemporary gripe that higher education has become the pivotal institution in society — too visible, too expensive and too influential to be allowed to repeat past mistakes. Hence there are all sorts of efforts to force institutions to reform, while institutional leadership is trying to force professors to change.

Second, there are changes in the extracurriculum which may be so profound that they will finally force changes in the formal curriculum. Frederick Rudolph remarked in several of his works that to know how the curriculum will look two generations hence, look at the extracurriculum right now. He documented this theory with some extra curricular activities in the early 19th century such as literary societies, growth of the fraternity system and musical and dramatic activities, all of which foreshadowed major curricular developments. It is possible that this phenomenon is still operating.

Students have used extracurricular activities to provide breaks or discontinuities in their studies. Through all sorts of devices — dropping out, prolonging education over an eight- to ten-year period — students sensed that some discontinuity was needed. For some time institutions did not publicly recognize this need. But now colleges are trying to find ways to institutionalize discontinuities — through overseas experiences, leaves of absence, cooperative work-study, work experience, and through easier exit and re-entry.

Third, there is better information on what colleges are doing than there ever was in the past. Impact studies give information that simply did not exist before. A fair number of economic studies of the costs of higher education are now available. Ten years ago there were only two educational economists in the country; that same year there were 40 agricultural economists at Michigan State University alone. But times have changed and studies are multiplying. The computer is having its impact on colleges and universities at last.

Fourth, there is the advent of performance contracting. To be sure criticisms have been leveled at performance contracting in elementary and secondary schools. Some early experiments reflected fraud in the assessment of outcomes, but now there are 6,200 or more instances across the country of educational institu-

tions contracting with private firms to bring about stipulated changes in student behavior. It is still a growing movement which has to run its course, but there is considerable interest by political leaders in looking at the possibilities of performance contracting.

EMERGING PATTERNS

Partly in response to the above factors are the broad categories of reforms exemplified earlier in this monograph.

1. There is much interest in changing temporal arrangements -- going from the semester to the trimester or the quarter, or to the three-three or four-one-four, etc. While calendar changes per se ought to do little, if they are tied in with some other profound changes one ought to look at them carefully. The modular curriculum developed at Colorado College seems especially promising since it breaks with the tradition of uniform course packaging. While only two years old, it seems to be working satisfactorily.
2. There is growing interest in changing spacial arrangements. The movement toward house plans or cluster colleges at Santa Cruz or the University of the Pacific, for example, is worth attention. So is team teaching, the method followed at Stephens College or Boston University. Block scheduling has been tried at Florida State University with some success. Students did not know it but block scheduling put them into teams of students and teachers following a definite sequence of courses. These experiences seem fairly effective but no one has yet analyzed costs.
3. The use of students in the instructional process seems finally to be catching on. This has long been validated in folkways and hunch. There has always been general awareness that peer influence is powerful, but now there is much experimentation using peers in an instructional capacity. Such uses range from undergraduates teaching languages to graduates teaching each other how to be college teachers.
4. There are promising developments in educational technology. Research has long since found television effective as an instructional device, although most professors continue to think of it as no more than a classroom aid. Considerable experimentation with computer-assisted instruction shows some successes and some failures. The fully computer-based course does not seem profitable at this point, but some computer-assisted courses are apparently producing important gains. Other possibilities include the use of videotapes and tape recorders, and there is speculation about the enormous potential of the new tape cassettes.
5. Since there is growing interest in new methods of measurement and evaluation, many institutions are experimenting with pass-fail, although there is no evidence as to how well this option is working. "Pass" can mean that a student just barely did not fail, or a superlative performance -- but academic records don't indicate which. Although the pass-fail

options may not become standard, some variant of the letter grading system will emerge. The "A,B,C, no entry" system has potential. There is also growing interest in mastery testing, where every student is examined until he demonstrates complete mastery of the material. It may take a week, a term or a year; the length of time is unimportant. There is also resurging interest in comprehensive examinations.

6. There is growing interest in off-campus experience, ranging from study in overseas branches, to cooperative work-study programs, to attempts to get students off campus for a limited time. All these efforts assume that education is not limited to what goes on in the classrooms, an assumption that deserves careful consideration.
7. There is pressure for problem-oriented courses which draw on a variety of disciplines and are conducted for varying lengths of time.
8. Recently discovered psychological theories are being tested by a few institutions in a limited way. The developmental psychology of Ericson and Sanford, which is being interpreted by Joseph Katz and others, is gaining currency among some educators. There is also some unevaluated experimentation with T-groups and sensitivity training.
9. A fair number of institutions have gone back to Ralph Tyler's papers of the 1930's and are trying to specify objectives, search for relevant learning experiences and find relevant ways of evaluating the outcomes. At the University of Michigan, for example, a group of faculty has put together a handbook showing professors how to use Tyler's system of stating objectives.

CONDITIONS NECESSARY FOR REFORM

If some of these clusters of reforms and some of the experiments described earlier are valid, it becomes important to examine the institutional conditions which must be present for the suggested reforms to become reality.

1. Strong imaginative administrative support is essential if an innovation is going to take. It is abundantly clear that, in our system of education, faculty members are educationally conservative while administration is essentially dynamic. It is the administration which looks at the broad mission of the institution and tries to suggest new directions; all too often the faculty resists. Innovation requires the same strong administrative leadership that Charles Eliot expressed when he announced to the Board of Trustees in his inaugural address that Harvard was going to move toward the free elective system, or that Hutchins expressed when he said that The University of Chicago was going to reemphasize undergraduate education. Time and again successful innovations have been supported by wise administrators. For example, the new engineering course at West Virginia University has staff support from a variety of disciplines, apparently possible because its backers included the president and the dean of engineer-

ing. Several years ago at Michigan State University the engineering faculty felt unfavorable toward the general education program until a new dean of engineering took office who felt strongly that general education belonged in the engineering curriculum. Two years later his faculty's feelings about the program had changed but there had been no significant turnover in personnel.

2. There is the matter of institutional readiness. This is hard to define but without it innovation is not going to have much chance. When an institution in serious financial trouble finds the right reform, it takes. If the reform were attempted six months before the crisis became apparent it probably would not work.
3. The institution must be willing to provide substantial financial support. Too many imaginative innovations that seemed to make changes in students' lives have died when limited free capital within the institution, or more frequently, extramural capital dried up.

The perfect example was an attempt by the Ford Foundation in the 1950s to improve teacher preparation in Arkansas. For a while there was much experimentation in little liberal arts colleges and teachers colleges. But innovation dried up when the Ford money did, and those schools went back to their time-honored practices. It was almost as though the Ford money had never been there. If an institution is serious about making a major change, it must accept the full cost of that change in the long run and be willing to make the necessary financial commitments.

4. Innovation to be successful must be congruent with the philosophy of the institution.
5. The person directing the innovation must be technically competent. A program to prepare teachers for inner city schools produced some outstanding results because the director of the program would not try to teach teachers until he had taught in that situation himself. Many promising innovations have failed because the person charged with assessment was technically incompetent, and even the unsophisticated questioned his data.
6. Finally, innovation will fail unless there is a visible payoff for students and faculty. While love might allow a person to work to the limits of endurance for one or two semesters, unless his efforts are eventually rewarded, the program will die. Innovative programs require special efforts and the efforts must be rewarded in a legal tender that is recognized by students and faculty. For faculty, financial rewards are the most attractive. For students, more creative and satisfying use of their time is important. Without these incentives, good ideas will not succeed.

Appendix

Innovations in Selected Fields

The examples of curricular innovation and change in programs for vocational, technical and career education described in Chapter III illustrate the sorts of activities being undertaken, but it is desirable to see how several of the more frequently offered vocational fields are attempting to change.

JOURNALISM

Journalism is offered in both two- and four-year institutions, although two-year journalism programs have not been notably successful in producing practicing journalists.

In 1971, Norton sent questionnaires to the deans or heads of all journalism schools and departments offering at least the bachelor's degree.¹ The questionnaire presented a list of 100 trends extracted from educational literature dealing with innovation and change. It asked which of these were being carried out, whether there had been any change due to using the innovation and whether the change was desirable. Of the 198 questionnaires sent out 137 were returned; the 70 percent yield is high for this kind of research. In aggregate these data present a profile of innovation and reform in journalism involving curricular and other matters.

In Table I, which follows, 50 reforms or innovations being attempted in schools and departments of journalism are listed in rank order of popularity.² Popularity here is defined as an increase or an intensification in the active use of the activity. Many of the items are not directly germane to the curriculum as narrowly defined. However, even such matters as involving students in educational policy or increasing the number of minority students enrolled in degree programs have curricular implication.

¹Michael Merrill Norton, "Changing Education for Journalism" (unpublished Ph.D. dissertation, Stanford University, 1973).

²*Ibid.*, pp. 64-67.

Table I
Popularity of Reported Trends During Past Ten Years

Trend	Institutions (N = 136)	Rank
Increase in proportion of non-majors enrolled in at least one journalism course	109	1
Increase in proportion of students participating in administration or policy formulation	107	2
Increase in proportion of courses using movies or filmstrip at least three times	101	4
Increase in proportion of courses using overhead, opaque, or slide projectors at least three times	101	4
Increase in proportion of courses using tape recorders at least three times	101	4
Increase in proportion of minority students	99	6
Increase in proportion of courses including some off-campus field experience	92	7.5
Increase in proportion of students receiving credit for independent study or research	92	7.5
Increase in proportion of students spending at least three months in an internship or work experience before receiving degree	90	9
Increase in proportion of interdisciplinary or interdepartmental courses	84	10
Increase in proportion of students meeting individually with faculty at least weekly	82	11
Increase in proportion of courses devoting at least one class period to professional ethics	80	12
Increase in proportion of courses using some form of team teaching	77	13
Increase in proportion of courses which simulate field experience in the classroom or lab or use a "games" approach	72	15
Increase in proportion of courses using "case study" or "problem" approach	72	15

Trend	Institutions (N = 136)	Rank
Increase in proportion of students obtaining practical or field experience early in academic program	72	15
Increase in proportion of credit hours allowed in elective courses chosen by the student	70	17
Increase in proportion of faculty members teaching at least one experimental, <i>ad hoc</i> , or supplementary course during the academic year	68	18
Increase in proportion of courses in which international dimensions of subject are emphasized	66	19.5
Increase in proportion of courses containing material explicitly relevant to ethnic minorities	66	19.5
Decrease in proportion of courses taught primarily by the lecture method	64	21
Increase in proportion of courses using television at least three times during course	63	22
Increase in proportion of courses designed primarily for non-majors or general campus	62	23.5
Increase in proportion of courses taught during the summer	62	23.5
Increase in proportion of foreign students	59	25
Increase in proportion of course offering a grade option, as letter grade or pass-fail	58	27
Increase in proportion of students learning to use a computer	58	27
Increase in proportion of faculty teaching at least one cross-listed course or other course outside the school or department	58	27
Increase in proportion of faculty with at least one year full-time professional experience	57	29
Increase in proportion of female students	55	30
Increase in proportion of faculty with international or overseas experience	54	31

Trend	Institutions (N = 136)	Rank
Increase in proportion of students with overseas learning experience	52	32.5
Increase in proportion of faculty working with continuing education programs for professionals	52	32.5
Increase in proportion of credit hours recommended in social, behavioral sciences	47	34
Increase in proportion of courses involving use of a computer by students	45	35
Increase in proportion of credit hours recommended in liberal arts courses	44	36
Increase in proportion of female faculty members	43	37
Increase in proportion of students participating in tutorial programs or activities	36	38
Increase in proportion of credit hours recommended in humanities	34	39.5
Increase in proportion of faculty with highest degree earned outside their professional field	34	39.5
Increase in proportion of courses taught in rooms with built-in audio-visual equipment, or "multi-media" classrooms	33	41
Increase in proportion of courses using programmed instruction or materials	31	42.5
Decrease in proportion of credit hours recommended within major school or department	31	42.5
Increase in proportion of courses deviating in length from traditional academic calendar	30	44
Increase in proportion of faculty members from ethnic minority groups	28	45
Decrease in proportion of students who "drop out" of college or change to another major before completing degree requirements	27	46

Trend	Institutions (N = 136)	Rank
Decrease in proportion of credit hours recommended in specific, required general education courses	26	47
Increase in proportion of credit hours recommended in mathematics and statistics courses	19	48
Increase in proportion of students preparing to be paraprofessionals or needing less than a full degree program	16	49
Increase in proportion of credit hours recommended in natural science courses	15	50

TEACHER PREPARATION

Illustrative of the problems of all vocational programs, but magnified and intensified, are the problems of teacher preparation. The education of teachers has been the largest single vocational preparation activity of American colleges and universities. For most of the 650 to 700 liberal arts colleges, over half their enrollments have been in teacher preparation. State colleges and universities generally evolved from teacher preparing institutions and continued that activity as one of their major efforts. There has been almost continuous discontent with and criticism of teacher education and its results, yet reforms are attempted only occasionally and pleas for reforms such as those advanced by Conant, Koerner or Bestor remain unheeded. Schools or departments of education seem the least innovative and reforming of any professional field. When books on changes in teacher preparation are examined they emphasize the need for change, expose time-worn but still unsolved issues, argue that research should, but does not, undergird professional preparation and describe or evaluate very few attempted modifications.³

The reasons for this lack of innovations in the field of teacher education are obvious. There is little agreement as to whether teaching is a skill, a process or a complex interaction of overt and covert elements and experiences. There is no agreement on how to judge the effectiveness of teacher preparation. Even were there agreement that ultimately the education of students should be the criterion, there are no effective and economic means for doing so. There is little agreement on the sciences basic to teaching, the relationship of the liberal arts to teaching or even the purposes of teaching. Teacher preparation, then, is truly, in James G. March's

³See for example Donald J. McCarty, *New Perspectives in Teacher Education* (San Francisco: Jossey-Bass, Inc., 1973).

conceptualization, an organized anarchy in which there is uncertainty of goals, an imprecise technology for the achievement of goals and no generally understood criteria available to evaluate performance.

Yet those involved in teacher preparation have not been immune to the reform tendencies in other professional fields and in undergraduate liberal education. Hence it is appropriate to review some of the ideas currently being discussed or attempted.

1. There is a conception of a curriculum as the development of competencies organized in a systematic or sequential way. Such curricula establish behavioral objectives, provide training to produce the desired competencies and use the objectives to assure student progress toward over-all teaching competence. This emphasis on curricula is leading to the creation of taxonomies of teacher competencies, teaching modules with stated objectives, assessment instruments, suggested activities and materials and self-recording analysis procedures. All of these innovations theoretically could be exported to most teacher preparation institutions, and conceivably, all can be fed into computers and related to student biographical information. That could facilitate progress as well as final assessment of growth toward competencies. Implementation of this scheme lies in the future, however, if anywhere.
2. Since normal schools began to prepare teachers for work in high schools, a goal of teacher training has been to engage faculty from arts and sciences more directly in organizing programs and in teaching aspirant teachers. Aside from some university-wide committees on teacher education, however, some ad hoc projects and some cooperation in awarding the MAT degree, professional education and the academic fields are still far apart. There is a desire for rapprochement, but no well articulated theory of how to bring it about.
3. The idea of greater community control of schools is emerging, especially in communities with high proportions of minority group members. There seems to be general opinion that cadet teachers must be prepared to act intimately with the community, but attempts to provide necessary experiences seem random. Little evidence has been presented that exposing cadet teachers to distinctive communities makes them any more sensitive to the educational problems of minority group students, however.
4. Cadet teachers are being prepared to function in an open classroom. Open classroom is one of the fad terms which can mean anything from return to a one-room schoolhouse to a carefully contrived and eclectic arrangement of materials and experiences in an open situation. Preparing teachers for a concept still only loosely defined is a problem.

Harold Howe III, for example, can only say that

For teachers and administrators alike, running effective open programs means breaking hard, unfamiliar ground, where the signals

are changed and the signposts are non-existent. They need all the help they can get.⁴

He goes on to argue, however, that the training need can be best met through utilizing the school, more than the university, as a training device. He feels that using schools as training centers for young cadet teachers and more mature adults is a promising development. Of course, this is the idea of the teaching hospital. But other attempts to adapt the medical training model to teacher preparation — such as the use of clinical professors — have not been highly successful. Thus only time can produce validating evidence. Howe's ideal center would include people not usually found teaching college classes — police officers, social workers, court officers, probation agents, recreation department members, as well as potential employers. But he does not indicate how to fund this Utopia and, of course, until that step is taken, all that precedes is pure speculation.

5. In-service education of teachers on the job is an unfulfilled need. It is estimated that a high proportion of teachers on duty in 1973 will still be teaching five or six years later, that 75 percent of the teaching force will be stable in the 1970s, and that these people will require continuous upgrading. How to fund such activities and the best techniques of in-service training remain unsolved problems. During the peak of the NDEA programs to upgrade teachers of languages, sciences and the like, the financial problem may have been solved but the methodological ones probably were not.

During the 1960s there were numerous other efforts to improve preparation of teachers and even more numerous suggestions. Quite a few did not succeed. The MAT degree, intended to strengthen the substantive preparation of secondary school teachers, proved inflexible — it did not allow easy shifts from secondary to junior college teaching, was less salable than a straight master's degree and was excessively time-demanding compared with the rewards.

Preparing teachers with materials from the new mathematics, physics or biology, certainly gave cadet teachers new formulations; but the case is moot whether this resulted in better teaching as measured by pupil achievement.

James Conant's plea for clinical professors of teaching was for the most part rejected, largely because the career slopes of public school teachers and university professors were not sufficiently congruent.

Similarly, the 1960s saw the concept of flexible scheduling receive considerable attention, but attempts to develop sophisticated computer programs and to prepare teachers to make it workable failed.

It may be however that out of all these ideas and experiments some new curricular model may evolve. The Carnegie Commission

⁴*Ibid.*, p. 57.

on Higher Education, after reviewing needs and much experimentation, suggests these ideas:

1. Since 75 percent of a prospective teacher's courses are taken outside of the college of education, . . . the education of teachers must be recognized as a responsibility of the whole university so that their needs are taken into account in the design of arts and science courses.
2. Teachers and the colleges that serve them have tended to reflect white middle class values Recruitment to the teaching profession is in need of diversification.
3. Pre-service training . . . will be short-lived unless the [school] environment . . . encourages teachers to experiment and learn [I]n-service training for teachers and . . . re-examination of the training of school administrators [are crucial.]
4. The question of teacher demand is complicated. . . . It seems desirable for children to see male teachers at the elementary level. . . . Supply and demand . . . of teachers by teaching field [is in imbalance]. . . . and . . . there is . . . a shortage of people who can work effectively in inner-city schools . . . , bilingual teachers . . . , teachers in day care centers . . . , [teachers in] adult education . . . , private industry, proprietary schools, correspondence schools, and the like.

The Commission goes on to recommend reform in four elements of teacher education:

1. *Academic Preparation.* The needs of classroom teachers are frequently not considered in the determination of course offerings or in the way subjects are taught.
2. *Professional Education.* There seems to be little difference between an uncertified teacher who has not taken such courses and a certified teacher who has taken the full requirement. Education courses seem weak on two counts There is not an adequate research base in the social sciences to sustain them and . . . [they are separated] from the practice teaching component of a teacher's training.
3. *Practice Teaching.* Teachers generally report that it is the most useful element in their training. . . . It is essential that students be exposed to a variety of teaching contexts and styles so that they begin to understand the needs of different types of children and the range of possible responses to them.
4. *In-Service Education.* School-based teacher centers may provide a more effective way of sustaining teacher development.⁵

BUSINESS EDUCATION

Business education has seemed since the early 1960s consider-

⁵Carnegie Commission on Higher Education, *Continuity and Discontinuity* (New York: McGraw-Hill Book Company, 1973), pp. 85-93.

ably more innovative than teacher education in the sense that reforms attempted have been in part validated and retained. The case method has proven an important way to breathe reality into education. Increase in quantitative elements in programs have produced people who can better cope with the information revolution.

Two basic trends are now perceivable. The first is the trend toward individualization of instruction. It is well known that individuals differ widely in the speed with which they can learn material. The advent of the computer now makes possible this individualization of instruction. The second trend focuses on the integration of reality and learning experiences. The case method was intended to do this, but graduates under the case method still approached their first jobs largely ignorant of reality.

These two trends are reflected in a number of specific practices. The most widely used technique for individualized instruction is the programmed text which presents students with short reading passages, followed by questions to be answered and compared with keys before continuing. Such texts may be manual or related to a computer. Both colleges and business corporations are now trying to construct elaborate packages of texts, work books, computer programs and illustrated materials which could as well be used by a student on his own as in a classroom context.

In order to better train its new salesmen and service engineers who work with corporate managers, IBM has been developing a new job training program that will integrate computer-based self-study and on-the-job training. This approach will take full advantage of the computer which IBM knows so well. The philosophy behind this course is illustrated by the initial steps that it involves.

1. Each trainee should have a certain minimum set of capabilities at the end of the training period. (These are set by IBM).
2. The branch manager and the trainee meet to determine what additional skills and competences (above the minimum level) that individual should have by the end of the program.
3. A flexible timetable and plan is outlined that will bring the trainee to the level of skills that has been specified.

Once these three steps have been completed, the educational group at IBM will put together the appropriate package for the trainee. This package will be composed of a number of subunits or modules, each with a specific teaching objective. For example, the six major areas to be covered in the salesman training program are business, IBM marketing, systems implementation, systems engineering, computer science, and applications. Each major area is then broken into sub-areas (business has 12 such sub-areas) and then each sub-area is broken into individual learning modules. For example, breakeven analysis is a learning module in accounting, which is a sub-area of business.

The method by which these modules will be taught is computer-

aided self-study. Each branch office will have one or more computer terminals and all of the necessary printer material for the entire program. The trainee will complete each learning module by reading certain material and working the computer terminal in utilizing the things he has learned and in demonstrating his level of mastery of the subject. Thus the computer will be used for computation tasks in connection with the content of the program and as a teaching pool for guiding the trainee's future efforts by identifying in which area he needs more study.⁶

A greater semblance of reality is being sought through simulation games, some with the support of computers. These games have generally been of two types — behavioral games such as role playing, and computer-based business simulation games.

Many of the behavioral games used today have their basis in research on organizational and individual behavior. While these games do not necessarily replicate reality for each individual student, they point out to the student that the specific concepts taught in the classroom originate in practical management situations, and that an understanding of these concepts can be useful to the manager.

Very similar to these behavioral games is the teaching technique of training or T-groups. In this "sensitivity" training one can see not only a technique aimed at bridging the gap between the classroom and reality, but also an approach that completely integrates the content of the educational experience with the instructional technology.

The aim of most computer-based management games is to simulate the environment within which management decision making takes place. The most elaborate game usually organizes students into several companies and has them compete over periods of time, just as companies do in an industry. Each period the students submit plans for their company and a computer program is used to integrate decisions made by the various firms and simulate the resulting status of each firm. While such games have been criticized for inaccurately representing reality, they have proven feasible and an excellent method for getting students involved and for making the educational programs of business schools more relevant to actual management situations.⁷

NURSING

Nursing educators have been among the more introspective of those concerned with preparation for careers and vocations. During the 1950s and '60s a number of conferences and studies established the parameters of nursing education at the bachelor's level. They concurred that the fundamentals of nursing education rest in the liberal arts and sciences as interpreted by colleges and universities. Stemming from that base, nurses in training were to be

⁶Steven C. Wheelwright, "Management Education and the Technology of Instruction," *American Association of Collegiate Schools of Business Bulletin*, VIII (April 1972), p. 16.

⁷*Ibid.*

exposed to additional knowledge in the humanities and natural and social sciences particularly relevant to man and his environment. It was assumed that mankind should be the focus for nursing education. Then followed specific courses in nursing science. However,

the core of professional education is that body of knowledge which encompasses the profession's unifying principles and hypothetical generalizations.

Those courses should

... emphasize the theoretical foundations of professional practice; that a fundamental body of scholarly knowledge should be the core of professional education and that the acquisition of skills and techniques should be a secondary, if necessary, concern.⁸

To accommodate those three kinds of experience, nursing educators were willing to see programs expanded to five years, enough time to inculcate a theoretical core of nursing knowledge and a set of professional values and to provide for the acquisition of skills and practice. Laboratories were to figure largely in bachelor's degree programs, on the assumption that bachelor's degree nurses require more theoretical preparation than did nurses completing an associate degree or hospital school program of study. Such curricular ideas were consistent with the concept of general education, prevalent during the 1940s, '50s and '60s, which emphasized that all students should be exposed to a core of general education regardless of their ultimate vocational destiny.

Innovative curricular development in nursing education now appears to be moving away from earlier concepts. For example, student involvement outside the hospital is increasing slowly. It is becoming more important for nurses to understand and have skills to cope with family and community problems and pressures. Thus all students make home visits prior to the senior year community nursing course, and a few schools have prescribed that the entire junior and/or senior year be spent off campus, in the community and institutional settings. Field study, independent study, off-campus study and nursing electives are increasingly used. Most of these off-campus or independent study experiences have been community-oriented, dealing with such problems as occupational health, rural community health, health of the aging or situations such as addiction clinics, headstart programs and Indian reservations. Interim terms in January have made such activities feasible as they are admirably suited for off-campus programs.

There also is a pronounced trend for baccalaureate programs to provide planned laboratory study in developing community agencies to let students view their future roles. In one senior community nursing course, faculty and students are introducing the role of the professional nurse to a neighborhood and demonstrating the contribution of nursing to health care. In another instance, a neighborhood health center offers comprehensive care, invites

⁸Martha E. Rogers, *Reveille in Nursing* (Philadelphia: F.A. Davis Company, 1964), pp. 55-59.

students to join the multidisciplinary teams providing family care. Students in another school carried out studies entitled "Comparative Investigation of the Delivery of Health Care in an Outpatient Clinic," and "Utilization, Comparison of Two Types of Health Care Facilities in a Poverty Area."⁹

Nursing educators are now discovering the significance of multidisciplinary preparation for professionals who must work in teams on highly complex problems. With this realization have come efforts to build interdisciplinary elements into programs. Where faculty members have encountered difficulty in providing such interdisciplinary work, students have contrived curricula for themselves, but in some baccalaureate programs interdisciplinary experiences are being planned into the curriculum.

In one medical center, students in nursing, pharmacy, medicine, dentistry and social work early in their career take a health science course together that focuses on the social aspects of health and disease in ambulatory care and which includes theory and practice in the team study of patients. At another center, secondary medical and nursing students study selected families enrolled in the clinic and focus on the psychosocial dimension of health and illness and make joint visits to patients' homes.¹⁰

In view of the saliency of the health team with many specialists contributing their insights, baccalaureate nursing programs have moved toward earlier specialization. At one time, nursing education, like law schools assumed that all graduates should be generalized practitioners who would develop specialized skills on the job or in postbaccalaureate programs. Such specialization is eased by greater use of independent study and electives, which seem to be the most promising way to make nursing education programs flexible enough to prepare students for unknown future roles.

One problem perplexing nursing educators involves the relationship between learning, certification and practice. Several levels of nursing competency are required by the health care team, but nurses trained differently and at different levels do substantially the same thing in a hospital situation. The theory is that

Society needs professional nurses . . . because of the increased complexity of knowledge needed to render nursing services today Technical nurses and auxiliaries need professional nurses for direction, supervision and support.¹¹

Thus there appears to be a need for a professional nurse with training much more theoretical than the equally needed technical nurse, but the desirable preparation for each is still under debate. Also unsettled is the means for an Associate of Arts in Technical Nursing to gain the needed additional preparation to assume the role of professional nurse. It is too early to anticipate how this issue is likely to be resolved.

⁹Paulette Robischon, "Trends in Baccalaureate Education," *Nursing Outlook* XX (April 1972), pp. 283-276.

¹⁰*Ibid.*, p. 275.

¹¹Sister Dorothy Sheahan, "The Game of the Name: Nurse Professional and Nurse Technician," *Nursing Outlook*, XX (July 1972), p. 440.